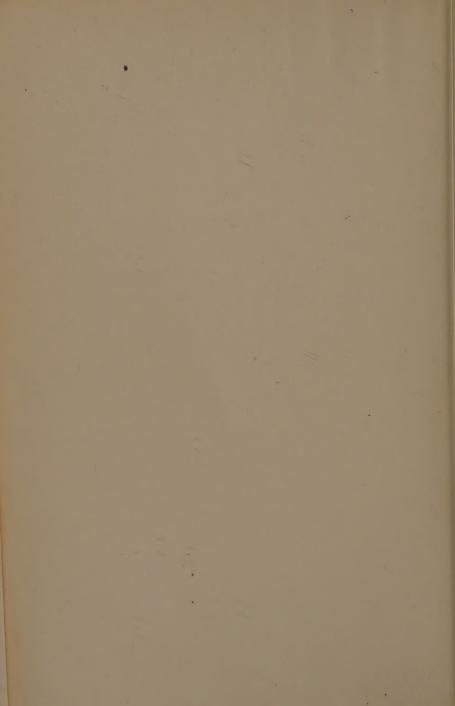


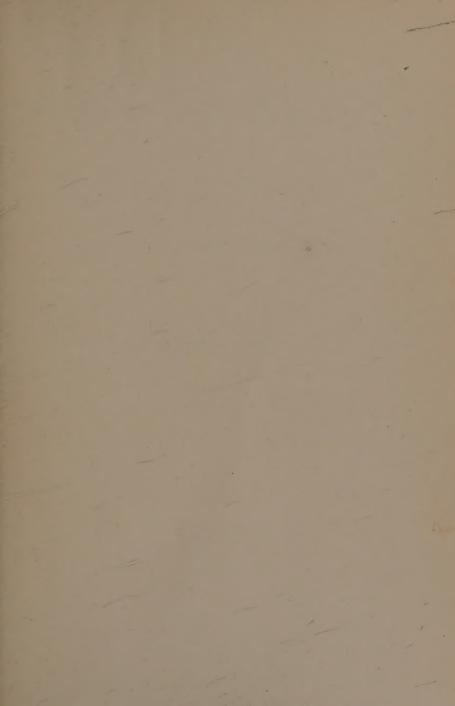
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FLORA OF NEBRASKA

A List of the Ferns, Conifers and Flowering Plants of the State with Keys for their Determination

by N. F. PETERSEN

Third Edition

Copyright, 1912 and 1923 by N. F. PETERSEN Plainview, Nebraska While as a student I was taking systematic botany under Doctor C. E. Bessey, he gave me a copy of Webber's Catalogue of the Flora of Nebraska and suggested that there were quite a number of plants reported for the state of which there were no specimens in the herbarium collected in Nebraska.

Soon after this I began checking over the state collection in the worked at this for some time, Dr. Bessey suggested a revision of Webber's list of flowering plants for a thesis and that keys be added to make it more useful. The first edition was an attempt to carry

out these suggestions.

In general the plan of the present edition is the same as the preceding except that the ferns and related plants have been included. This was rendered easier by the fact the fern material had recently been gone over carefully by Prof. J. T. Fitzpatrick for his Fern Flora of Nebraska, recently published in the American Fern Journal.

The list is thus intended to include all ferns, conifers, and flowering plants growing without cultivation in the state. The range in the state is given, followed by the localities from which it has been These localities are mostly based on specimens in the

University herbarium.

In the arrangement of the larger groups I have followed the classification in Dr. Bessey's Synopsis of Plant Phyla. Within the families the genera and species are usually arranged as in Britton's families the genera and species are usually arranged as in Britton's Manual. As it was not considered practical to include descriptions, this list should be used in connection with a descriptive manual. For this purpose Britton's or Gray's manual or Britton's and Brown's Illustrated Flora may be used. Britton's is more nearly complete for our western plants, while Gray's has some very useful illustrations. All these use Engler's system of classification and to facilitate cross reference the page in Britton's manual where the

genus is treated is given after each genus.

Each group is preceded by analytical keys and in the beginning of the book is a general key and a key to the families of spring flowers. The latter is based largely on the key to the families in H. F. Bergman's Flora of North Dakota. The aim has been to make all the keys as simple as possible. Some of the terms are defined in

the glossary of special terms in the appendix.

While working on the original list I was permitted to look over the collections of Rev. J. M. Bates and Dr. H. Hapeman. These are probably the most important private collection of plants in the state.

In the revision of the Cyperaceæ I have largely followed the treatment of Rev. J. M. Bates in his Sedges of Nebraska, published in the University Studies some years ago.

While making the revision I have used the herbarium and botany library, and have received valuable assistance and suggestions from members of the faculty of the Botany Department, especially from Drs. R. J. Pool and E. R. Walker, for which I am very thankful. I also wish to thank Dr. A. S. Hitchcock for calling my attention to some mistakes in grasses in the first edition; my brother, P. H. Petersen, for assisting in preparing the copy; and Prof. J. T. Fitzpatrick for helping with the proof reading. N. F. PETERSEN.



KEY TO THE PHYLA.

PAGE

Plants which are differentiated into root, stem and leaves, but not
producing seeds. Spore-bearing leaves variously arranged, but not forming cones. Phylum Pteridophyta9
Spore-bearing leaves forming a cone. Stems hollow, jointed; leaves reduced to toothed sheaths at the nodes. Stems solid; leaves functional. Phylum Calamophyta13 Phylum Lepidophyta13
Plants which produce seeds. Ovules and seeds borne on the surface of a scale or bract; stigmas Wanting. Ovules and seeds borne in a closed cavity in the ovary; stigmas present. Phylum Strobilophyta14 in the ovary; stigmas Phylum Anthophyta1
GENERAL KEY TO THE ANTHOPHYTA.
Plants with one cotyledon; fibrovascular bundles scattered throughout the stem; floral parts usually in threes or multiples of three; leaves mostly parallel-veined. Class MONOCOTYLEDONEÆ. 1 Plants with two cotyledons, fibro-vascular bundles forming a cylinder around a central core of pith; floral parts usually in fours or fives; leaves generally net-veined. Class DICOTYLEDONEÆ. 2
Class MONOCOTYLEDONEÆ.
Ovary superior, perianth when present attached at the base of the
ovary. Perianth usually well developed, partly or wholly corolloid. Carpels distinct or if partly united separating at maturity. ALISMALES15
Carpels united into a compound pistil, ovary usually three-celled. LILIALES18
Perianth represented by scales or bristles only, or wanting; never
Plants grass-like; flowers enclosed by chaffy bracts, ovary one-
Plants not grass-like; flowers not enclosed by chaffy bracts. Plants floating on the surface of water; stems leaf-like; leaves wanting. Plants terrestrial or rooted at the bottom of water, not free
floating. Terrestrial plants, or if aquatics, not submerged. ARALES 24
Aquatics, wholly submerged or some of the leaves floating. Stigmas two to four; flowers solitary in the axils. Naias. 24 Stigma single; flowers often spicate. ALISMALES. 15
Ovary inferior, perianth attached above it. Submerged aquatics with whorled leaves. HYDRALES58
Terrestrial plants, or if aquatics, not submerged.

MALVALES. __98

ERICALES. .104

Flowers regular; stamens three to six, free from style and IRIDALES -- 58 stigma. Flowers irregular: stamens one or two, united to the style. ORCHIDALES. __59 Class DICOTYLEDONEÆ. Ovary superior, perianth when present attached at its base, calyx often persisting at base of fruit. A. Corolla present. Petals distinct, or if slightly united, separate at the base. Carpels solitary or several and distinct, or but slightly united at the base, not forming a compound ovary.
Stamens attached at the base of the ovary; leaves without RANALES. __61 stipules. Stamens attached to the margin of a disk or cup-shaped hypanthium; leaves usually with stipules, but these may soon fall off. ROSALES, 131 Carpels several and united into a compound ovary. Petals more numerous than the sepals. Aquatics, petals numerous, leaves peltate or with a deep sinus. (See also Elatine, a minute aquatic.) Nymphæaceæ. --66 Terrestrial plants, sepals two (or three). Flowers regular, plants succulent, without latex. Portulacaceæ. --79 Flowers irregular or latex present. RHŒODALES. . . . 67 Petals usually not more numerous than the sepals, sepals usually four or five. Ovary one-celled, styles and stigmas often several. Ovary with one basal ovule; shrubs with compound leaves; fruit a drupe. Anacardiaceæ. 161 Ovary with several to many ovules, placentas central or parietal. Placentas central; leaves opposite; stem with swollen Caryophyllaceæ. --75 Placentas parietal, 2-5; sometimes intruded so as to make the ovary appear several celled. Sepals and petals four each, stamens six or more, Capparidaceæ. __68 Sepals five, petals five (or three). GUTTIFERALES. __96 Ovary two to several-celled. (Carpel separate above in some Saxifragaceæ.) Flowers irregular. Herbs with simple leaves. GERANIALES. --90 Trees with palmately compound leaves. Hippocastanaceæ, _160 Flowers regular. Stamens united into several clusters or into a tube surrounding the style.

> Stamens separate. (Slightly united in Oxalis.) Leaves evergreen or without green color.

Leaves normal, but not evergreen.
Foliage punctate, with a strong odor; trees or shrubs Rutaceæ92
Foliage not punctate. Herbs.
Ovary not enclosed in a hypanthium. Carpels free at the top. Saxifragaceæ149 Carpels united to the top of the ovary.
Sepals and petals four each, stamens six, tetradynamous. Crucifera69
Sepals and petals five each, capsule several- (often five-) celled. GERANIALES. 190
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CELASTRALES157
Petals attached to each other, but not truly gamopetalous. Without latex: stimules present: fruit a legume.
With letery stimules wenting
With latex; stipules wanting. Leaves compound or dissected. Leaves simple, entire. Fumariaceæ68 Polygalaceæ92
Petals united from the base into a single piece, truly gamopetalous.
Stamens free from corolla, more numerous than its lobes. ERICALES104
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i. è., opposite to the lobes. Primulaceæ. 102 Stamens attached between the corolla lobes, i. e., alternate with the lobes.
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regular in some Lamiales.) Fruits one to four-seeded, usually separating into one- seeded nutlets or achenes. LAMIALES 124
Fruits, six to many-seeded capsules. SCROPHULARIALES119

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Ovary with one or two ovules.	TT101
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Corolla wanting, calyx sometimes corolloid.	
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SANTALACEÆ. .160

✓ PAGE Corolla present. Corolla of distinct petals. Stems fleshy, spiny, leaves soon disappearing. CACTALES. 155 Stems and leaves normal. Ovules two to many in each cell of the ovary.

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Plants grass-like, with narrow parallel-veined leaves.

Stems usually 3-angled (sometimes round), solid; the scales which enclose the flowers arranged spirally; 2-ranked in CYPERACEÆ. - 26 Stems rounded, usually hollow; scales which enclose the flowers 2-ranked. POACEÆ. __36 Plants not grass-like, leaves net-veined. Trees. See general key. Herbs, sometimes slightly woody below. Calyx present, often petaloid, sometimes minute. Ovary superior. Stamen's usually 10 or more; pistils several to many, not RANUNCULACEÆ. Stamens less than 10, often of the same number as the sepals. Sepals 5 or 6, often petaloid; stamens 5-9; fruit often 3-angled; stipules usually sheathing the stem. POLYGONACEÆ. - . 85 Sepals 2-5 or none, never petaloid; stamens 4-5 or fewer; fruit never 3-angled. Sepals green or greenish, soft; flowers mostly bract-CHENOPODÍACEÆ. __82 less. Sepals dry, rigid; flowers mostly bracted. AMARANTHACEÆ. __81 Ovary inferior or permanently surrounded by the base of the calyx.

Leaves alternate; flowers in terminal clusters.

With one style or stigma; leaves pinnately com-MIMOSĂCEÆ. _137 Stamen filaments united at least at the base. Stamens 5 or 10. Leaves trifoliolate: stamens 10. OXALIDACEÆ. __91 LINACEÆ. --91 Leaves simple, entire: stamens 5. Stamens numerous, the filaments forming a tube about the ovary and styles. MALVACEÆ. 198 Flowers irregular, petals not all alike. RANUNCULACEÆ. ...61 Stamens many, separate. Stamens 10 or less, united or separate. Stamens 6, united in two sets; leaves dissected. FIIMARIACEZE. ... 68 Stamens not 6: either more or less. Leaves pinnate or trifoliolate, rarely simple. LEGUMINOSÆ. _136 Leaves neither pinnate nor trifoliolate. Flowers in terminal clusters, leaves narrow, en-POLYGALACEÆ. - 92 tire. Flowers axillary: leaves usually broad. Sepals 5, alike, green, often auricled; ovary 1-celled with 3 parietal placentas. VIOLACEÆ. --97 Sepals 3, one petaloid, saccate, spurred; ovary 5-celled. BALSAMINACEZE. 91 Ovary inferior. Leaves simple, often deeply cut. Sepals, petals and stamens 5 each. SAXIFRAGACEÆ. 149 Sepals and petals 4 each, stamens usually 8. ONAGRACEÆ. _150 Leaves compound, often much dissected; styles 2. UMBELLIFERÆ. 165 Petals united at least at the base, only slightly so in some Asclepiadaceæ and Primulaceæ; stamen filaments often attached to the corolla. Ovary superior. Corolla firm, dry, translucent, not colored or petaloid; plants PLANTAGINACEÆ. 103 stemless, leaves basal. Corolla variously colored, soft, never dry and rigid. Stamens more than 5. Flowers irregular. Leaves compound or much dissected. Leaves pinnate or trifoliolate, rarely simple. LEĜUMINOSÆ. _136 PAPAVERACEÆ. __67 Leaves finely dissected. Leaves narrow, simple, entire. POLYGALACEÆ. _ 92 Nowers regular; leaves trifoliolate. OXALIDACEÆ. 91 Stamens 5 or less in number. Elowers regular. Stamens opposite the corolla lobes, attached to center of lobe; ovary 1-celled with free central placenta. PRIMULACEÆ. _102

Ova:

Stamens alternate with the corolla lobes, attached be-
tween the lobes. Pistils 2, united only by the styles or stigma; juice
milky.
Stamens separate; without hooded appendages. APOCYNACEÆ116
Stamens united around the stigma; flowers with
hooded appendages between the corolla and the stamens. ASCLEPIADACEÆ117
stamens. ASCLEPIADACEÆ117 Pistil only 1; ovary 1–4-celled.
Ovary not deeply 4-lobed or 4-parted.
Leaves opposite or whorled; corolla salverformed. POLEMONIACEÆ105
Leaves alternate.
Twining herbaceous vines. CONVOLVULACEÆ107
Herbs not twining. Stigmas or styles 2-3.
Ovary 3-celled; stigmas 3.
POLEMONIACEÆ105
Ovary 1 or 2-celled; stigmas 2. HYDROPHYLLACEÆ109
Stigma and style 1; fruit a berry or capsule; flowers never bracted. SOLANACEÆ. 113
Ovary deeply 4-lobed or 4-parted, and separating
into 4 nutlets on ripening.
Leaves alternate. BORAGINACEÆ109
Leaves opposite. Corolla lobes usually 5; foliage not scented.
VERBENACEÆ125
Corolla lobes 4; foliage strongly scented.
LABIATÆ126 Flowers irregular, usually evidently 2-lipped, sometimes
nearly regular.
Ovary deeply 4-lobed; foliage usually strongly scented. LABIATÆ. 126
Ovary not deeply 4-lobed; 4-celled and 4-seeded, break-
ing up into four nutlets at maturity; foliage not scented. VERBENACEÆ125
Ovary not 4-lobed, 1 or 2-celled: seeds many.
Ovary 2-celled; flowers bracted.
SCROPHULARIACEÆ119
Ovary 1-celled; parasitic plants with leaves reduced to scales. OROBANCHACEÆ123
vary inferior,
Flowers not in involucrate heads, calyx normal. Leaves opposite or whorled.
Herbs; corolla lobes and stamens 4. RUBIACEÆ. 169
Shrubs or woody vines; corolla lobes and stamens usually
5. CAPRIFOLIACEÆ. 171 Leaves alternate.
Herbaceous vine with tendrils. CUCURBITACEÆ157
Erect herbs; stamens 5. CAMPANULACEÆ. 172
Flowers in dense heads surrounded by an involucre, calyx
represented by pappus or wanting. ASTERACEÆ. 173

Phylum I. PTERIDOPHYTA.

Ferns.

Key to the Genera of Ferns
ents floating on still water or stranded on wet banks. 16. Azolla. 12
ints rooted in soil or in crevices of rocks. Fertile leaves each with a single axillary spore-case; aquatic or marsh plants with grass-like leaves. 3. Isoetes10
Fertile leaves with many spore-cases, these never axillary. Leaves with four leaflets, resembling four-leaved clover; spore-
cases produced inside of hard bean-like structures (modified leaves?) called sporocarps. Leaves various, but not as above.
Spore-bearing leaves consisting of a blade and a fertile spike or panicle.
Leaf-blade simple, entire; spore-cases cohering in two rows on the simple spike. 1. Ophioglossum10
Leaf-blade lobed or divided; spore-cases not cohering. 2. Botrychium10
Spore-bearing leaves not as above. Fertile leaflets rolled up into bead-like bodies. 14. Onoclea. 12
Fertile leaflets contracted without green blades; spores 4. Osmunda 10
Fertile leaflets like the sterile, or differing only in size and form; spore-cases in clusters called sori, on the under surface of the blades.
Sori covered by the inrolled edges of the leaflets. Plants growing in moist woods; leaflets without a dis-
Plants growing on dry rocks; leaflets with a midrib.
different from the sterile. 7. Cryptogramma,11 Leaf-stalks dark, fertile leaves with narrower leaflets,
otherwise like the sterile. Leaves smooth. 8. Pellæa 11
Leaves tomentose. Sori not covered by the edge of the leaflets; naked or
covered by special indusia. Sori linear or oblong, twice as long as wide. Xerophytic rock fern with naked sori. 5. Notholæna11
Mesophytic plants, sori covered by indusia. 10. Athyrium11
Sori rounded, not twice as long as wide. Indusium rounded, with a notch at one side where it it is attached. 11. Dryopteris11
Indusium not as above, often disappearing. Indusium hood-like; leaf-stalk with two fibrovascular bundles. 12. Filix11
Indusium under the sorus; leaf-stalk with a single bundle, except at the base. 13. Woodsia12

Class EUSPORANGIATÆ.

OPHIOGLOSSALES.

1. OPHIOGLOSSACEÆ.

1. Ophioglossum. 2.

1. Ophioglossum vulgatum L. Common Adder's-tongue. Spreads by forming buds on the roots, prothallia rarely present. A colony of this plant was found in a wet, peaty meadow along Snake creek in Cherry county, 40 miles southwest of Valentine, by Rev. J. M. Bates.

2. Botrychium. 2. Grape Ferns.

The bud for the next year's plant is enclosed in or by the side of the base of the leaf-stalk, and plants should be dug to include this.

Sterile and fertile parts distinct from the ground up; sterile part long-stalked; bud pilose.

1. B. obliquum.

Sterile and fertile parts with a common stalk for some distance above the ground.

Sterile part of leaf short-stalked, not ternately compound; bud glabrous.

Sterile part of leaf sessile on the common stalk, blade ternately compound; bud hairy.

3. B. virginianum.

1. Botrychium obliguum Muhl.

An incomplete specimen from Franklin may belong here.

2. Botrychium neglectum A. Wood.

Nebraska according to Britton & Brown. The above specimen has been placed here.

3. Botrychium virginianum (L.) Sw. Rattlesnake Fern. Common in moist rich soil in the southeastern part of the state and in favorable places along streams across the state. Bellevue; Belmont; Florence: Halsey: Lincoln; Monroe and Squaw canyon in Sioux county; Plummer Ford; Weeping Water.

ISOETALES.

1. ISOETACEÆ.

3. Isoetes 27.

1. Isoetes melanopoda J. Gay.

Collected north of Exeter by Dr. J. H. Wibbe. A species of Isoetes was found by Dr. J. H. Powers near Crete.

Class LEPTOSPORANGIATÆ

FILICALES.

1. OSMUNDACEÆ

4. Osmunda, 4.

Osmunda regalis L.
 Osmunda spectabilis Willd.
 In wet soils in ravines near Franklin.

Royal Fern.

2. POLYPODIACEÆ.

5. Notholæna. 7.

1. Notholæna dealbata (Pursh) Kuntze. Rare in rocks in the southeastern part of the state. Weeping Water.

6. Adiantum. 7.

1. Adiantum pedatum L. Maiden-hair Fern. In moist shady woods in the southeastern part of the state. Albright; Bellevue; Florence; Lincoln; Nemaha; Plattsmouth; Peru; Richardson county; Table Rock.

7. Cryptogramma. 8.

1. Cryptogramma acrostichoides R. Br. Rock-brake. Collected on rocks near Franklin by E. M. Hussong.

8. Pellæa. 9.

1. Pellæa atropurpurea (L.) Link Rock-fern, Cliff-brake. On dry calcareous rocks in the southeastern part of the state. Brownville; Endicott; Peru; Table Rock; Weeping Water.

9. Cheilanthes. 9.

1. Cheilanthes feei Moore. On rocks in Red Willow county and in Hackberry canyon in Banner county.

10. Athyrium (Asplenium). 10.

1. Athyrium filix-foemina (L.) Roth. Lady Fern. Uncommon, occurring only in very favorable places in woods, mostly in the eastern part of the state. Lincoln; Long Pine; Omaha.

11. Dryopteris (Aspidium). 14.

The shield-shaped indusium distinguishes these from all other native ferns, but it may disappear and the sorus appear naked.

Leaves without spiny teeth.

Segments of the leaf not serrate.
Segments of the leaf finely serrate.
Leaves with spiny teeth.

D. thelypteris.
 D. cristata.
 D. spinulosa.

1. Dryopteris thelypteris (L.) A. Gray. Marsh Shield-fern. Common in shady places and in wet meadows. Cherry county; Crawford; Endicott; Franklin; Fremont; Halsey; Kearney; Newark; Long Pine; Thedford.

2. Dryopteris cristata (L.) A. Gray. In wet meadows on the South Fork of Dismal river in Thomas

3. Dryopteris spinulosa (Muell.) Kuntze. In damp woods or in wet soil by streams. Long Pine; Plummer Ford.

12. Filix. 17.

1. Filix fragilis (L.) Underw. Delicate Fern, Bladder Fern. Common along streams over most of the state; our most abundant fern. Anselmo; Ashland; Belmont; Endicott; Halsey; Lincoln; Long

Pine; Milford; Monroe canyon north of Harrison; Nebraska City; Nemaha; Omaha; Peru; Ponca; Plummer Ford; Plattsmouth, Royal; Squaw canyon; Tecumseh; Weeping Water.

13. Woodsia, 17.

Indusium of hair-like segments, covered by sorus; teeth of leaves often covering the sori.

1. W. oregana. Indusium of broader segments, conspicuous; teeth not revolute.

1. Woodsia oregana D. C. Eaton.
On dry bluffs in the western part of the state.
Belmont; Hat Creek basin; Long Pine; Plummer Ford.

2. Woodsia obtusa (Spreng.) Torr. Crevices of rocks mostly in the southeastern part of the state. Callaway; Emerald; Long Pine; Pawnee City.

14. Onoclea, 19.

1. Onoclea sensibilis L.

Common in low, wet soil over most of the state. Antelope county; Endicott; Fairbury; Franklin; Halsey; Kearney; Long Pine; Nebraska City; Paddock; Plummer Ford; southwest of Valentine.

HYDROPTERIDALES.

1. MARSILEACEÆ.

15. Marsilea. 20.

1. Marsilea vestita Hook & Grev. Marsilea, Clover Fern. Common locally in wet soil or shallow water throughout the state. Brunswick; Box Butte county; Clearwater; Deuel county; Fairbury; Lincoln near the Rock Island viaduct on Holdrege street; Minden; Plainview; Red Cloud.

2. SALVINIACEÆ.

16. Azolla, 21.

1. Azolla caroliniana Willd.

Floating on still water or stranded on muddy banks. Dismal river near Plummer Ford; Blue creek in Garden county.

Phylum II. CALAMOPHYTA.

Class EQUISETINEAE.

EQUISETALES.

1. EQUISETACEÆ.

1. Equisetum. 21.

Horse-tails, Scouring-rushes, Joint-weeds.

Stems of two kinds, the fertile not green, shedding spores in early spring; the sterile appearing later, green and much branched. 1. E. arvense.

Stems all alike, spores shed in summer or fall. Stem with many furrows, usually more than ten. Hollow of stem 34 of stem-diameter or more.

Stomata scattered, stems at length branched. 2. E. fluviatile. Stomata in rows, stems simple or nearly so. 4. E. lævigatum. Hollow of stem less than 34 of stem-diameter; stems large, 3. E. robustum. ridges tubercled.

Stem 5-10-furrowed, slender; central cavity small or wanting. 5. E. variegatum.

Common Horse-tail. 1. Equisetum arvense L. Common throughout the state, often in sandy soil, wet meadows and banks. Ashland; Anselmo; Brownville; Lincoln; Milford; Natick; Nebraska City; Long Pine; Pine Ridge; Thedford; Weeping Water; Wymore; Sioux canyon; Hat Creek basin.

Swamp Horse-tail. 2. Equisetum fluviatile L. Swampy places by streams or ponds. Burwell; along the Platte in Kearney county; Long Pine; Holt creek in Holt county.

3. Equisetum robustum A. Br. Stout Scouring-rush, Big Horse-tail. Common along streams throughout the state. Bellevue; Brownville; Kearney; Kearney county; Ponca; Plummer Ford; Ft. Niobrara; Pine Ridge; South Bend; Squaw canyon north of Harrison.

4. Equisetum lævigatum A. Br. Smooth Scouring-rush, or Horse-tail. Common in wet soil, especially in clay soil along rivers. Ashland; Crete; Dundy county; Callaway; Fairbury; Halsey; Hat Creek basin; Long Pine; Lincoln; Pine Ridge; Ponca; Red Cloud; Weeping Water; Thedford; Squaw canyon.

5. Equisetum variegatum Schleich.

Hooker county; Kearney; Lincoln; Long Pine; Valentine.

Phylum III. LEPIDOPHYTA. Class LIGULATAE.

SELAGINELLALES.

1. SELAGINELLACEÆ.

1. Selaginella. 26.

Little Club-moss. 1. Selaginella rupestris (L.) Spring. Locally abundant in gravelly soil or on rocks. Cheyenne county; Lincoln county; Long Pine; along Verdigris creek north of Royal. Has persisted for over ten years when planted in sandy soil in a grove in Antelope county, and in an abandoned gravel pit north of Lincoln.

Phylum IV. STROBILOPHYTA.

Class PINOIDEAE.

CONIFERALES.

The Conifers.

Leaves in clusters surrounded by a sheath at the base; mature cones woody.

Pinus.

Leaves not in clusters, scale-like; mature cones berry-like.

Juniperus.

1. ABIETACEÆ.

1. Pinus. 31.

Leaves in clusters of 5; twigs limber.
Leaves in clusters of 2-3; twigs stiff.

1. P. flexilis.
2. P. ponderosa.
1. Pinus flexilis James.

Limber Pine.

This pine was recently found growing with the bull pine on bluffs of Lodge Pole creek in Kimball county.

Douge I ofe creek in Kimban county.

2. Pinus ponderosa var. scopulorum Engelm. Yellow or Bull Pine. Pinus scopulorum (Engelm.) Lemmon.

Forms the bulk of the woods in the northwestern part of the state. Banner county; Belmont; Cheyenne county; Custer county; Fort Robinson; Franklin county; Greeley county; Long Pine; Sidney; Valley county.

2. JUNIPERACEÆ.

1. Juniperus. 36.

Shrubs; leaves all subulate; aments axillary.

1. J. communis.

Trees; some of the leaves scale-like; aments terminal.

Berry 1-4-seeded, ripening the first season.

2. J. virginiana.
Berry usually 2-seeded, ripening the second season; foliage glaucous.
3. J. scopulorum.

1. Juniperus communis L. Common Juniper. A xerophytic shrub of the western part of the state. Belmont; Hat Creek basin; Harrison.

2. Juniperus virginiana L. Common Red Cedar. Sabina virginiana (L.) Antoine.

Common along streams in the eastern part of the state. Often planted for wind-breaks or as an ornamental tree. Anselmo; Franklin; Fremont; Dismal river; Long Pine.

3. Juniperus scopulorum Sarg. Western Red Cedar. Sabina scopulorum (Sarg.) Rydb.

Along streams and in canyons in the western part of the state. Garden county; Keith county.

Phylum V. ANTHOPHYTA.

The Flowering Plants.

Class MONOCOTYLEDONEAE.

The Monocots.

ALISMALES.

Perianth of two series.

1. Alismaceæ. The inner series corolloid; the outer green. Both series alike. Leaves linear. 2. Sch Perianth of a single series or wanting, often 4-parted. 2. Scheuchzeriaceæ.

3. Potamogetonaceæ.

1. ALISMACEÆ.

Water-plantain Family.

Carpels in several series on a convex receptacle.

Some or all of the flowers perfect.

Calyx spreading, achenes scarcely compressed. 1. Echinodorus. Calyx closed over the fruits, achenes strongly compressed.

2. Lophotocarpus. 3. Sagittaria. Flowers monœcious or diœcious. Carpels in a single series on a flat receptacle. 4. Alisma.

1. Echinodorus, 54.

1. Echinodorus cordifolius (L.) Griseb. Abundant in a pond at Nemaha.

Bur-head.

2. Lophotocarpus. 55.

1. Lophotocarpus calycinus (Engelm.) J. G. Smith. In Lake Kearney; Greenwood.

3. Sagittaria. 56.

Arrow-heads.

Leaves sagittate with large basal lobes.

Basal lobes of the leaf-blades not longer than the terminal portion of blade.

Beak of the achene at right angle to the body, one-fourth as 1. S. latifolia. long as the body, or more. 2. S. cuneata.

Beak erect, short.

Basal lobes of the leaf-blades 2-3 times as long as the terminal portion of blade.

2. S. cuneata.

3. S. longiloba.

Leaves not sagittate: basal lobes small, or wanting. 4. S. rigida. Pistillate flowers sessile or nearly so. 5. S. graminea.

Pistillate flowers not sessile. 1. Sagittaria latifolia Willd.

Common in muddy places or in shallow water all over the state, especially in the sand-hills. A very variable species and is sometimes divided into several forms. Cody; Kearney; Lincoln; Long Pine; Minden: Thedford.

2. Sagittaria cuneata Sheldon. Sagittaria arifolia Nutt.

In shallow water in the western part of the state. Cherry county; Garden county; Mullen; Thedford; Wood Lake.

3. Sagittaria longiloba Engelm.

Near Minden; Mullen.

4. Sagittaria rigida Pursh.

In wet places and shallow water over most of the state. Ewing; Greenwood: Kennedy; Lincoln; Neligh.

5. Sagittaria graminea Michx.

In muddy places and shallow water mostly in the eastern part of the state. Halsey; Holt county; Lincoln; Mead; Minden.

4. Alisma, 54.

1. Alisma subcordata Raf. Alisma plantago-aquatica L.

Water-plantain.

Common in mud or shallow water over most of the state. Alliance; Anselmo; Callaway; Cherry county; Halsey; Homesville; Newark; Peru; Plainview; Valentine; Wood Lake.

2. SCHEUCHZERIACEÆ.

1. Triglochin, 52.

Carpels three, axis to which they are attached three-winged.

1. T. palustris. 2. T. maritima. Carpels six, axis hexagonal.

1. Triglochin palustris L.

Arrow-grass

Sand-bars of the Niobrara River.

2. Triglochin maritima L. Arrow-grass. In marshy places in various places in the state. Poisonous to stock both in the green state and in hay. Alliance; Burwell; Newark; Thedford.

3. POTAMOGETONACEÆ.

Pondweed Family.

Flowers perfect, usually on elongated peduncles.

Perianth segments 4; fruiting peduncles straight. 1. Potamogeton. Perianth wanting; fruiting peduncles coiled. 2.] Flowers monœcious, flower clusters sessile or short-peduncled. 2. Ruppia.

3. Zannichellia.

1. POTAMOGETON, 41.

Pondweeds.

With both floating and submerged leaves.

Stipules axillary and free from the leaves.

Submerged leaves bladeless, about 2 mm. wide. 1. P. natans. Submerged leaves with proper blades.

Upper submerged leaves much broader and shorter than the

lower.

2. P. amplifolius.
Upper submerged leaves not very different from the lower. Floating leaves gradually narrowed into short petioles; foliage and spikes reddish. 3. P. alpinus. Floating leaves abruptly narrowed into long petioles.

Floating leaves pointed at the base; fruit distinctly 3-keeled, the middle keel often winged. 4. P. americanus. Floating leaves rounded or cordate at the base; fruit not 5. P. heterophyllus. distinctly keeled.

Stipules adnate to the base of the leaves.

Peduncles of the submerged spikes 4-6 mm. long. 11. P. diversifolius.

Peduncles of the submerged spikes not over 2 mm. long. 12. P. dimorphus.

With submerged leaves only.

Leaves with broad blades.

6. P. lucens. Leaves narrowed at the base, not clasping. 7. P. perfoliatus. Leaves broad and clasping at the base. Leaves with narrow or capillary blades.

Stipules free from the leaves.

Stem flattened.

Leaves 5-20 cm. long, 2-4 mm. wide.
Leaves 2-6 cm. long, 1 mm. or less wide.
Stem filiform; leaves 7 mm. wide.
Stipules adnate to the base of the leaves. 8. P. compressus. 9. P. foliosus. 10. P. pusillus.

Stem flattened; stigma broad, sessile.

14. P. interior. Stem filiform; stigma capitate, style evident.

Fruit not keeled.

13. P. pectinatus. 15. P. interruptus. Fruit prominently keeled.

1. Potamogeton natans L.

In ponds and streams throughout the state. Cherry county; Halsey. 2. Potamogeton amplifolius Tuckerm.

In streams and ponds throughout the state. Atkinson; Cedar county; Grant county: Lincoln; Neligh.

3. Potamogeton alpinus Balbis. Reported only from Cass county.

4. Potamogeton americanus C & S. In ponds and streams throughout the state. Anselmo; Atkinson; Cedar county; Halsey; Minden; Neligh; Norway; Thedford.

5. Potamogeton heterophyllus Schreb.

In the North Loup river in Cherry county; Halsey; Kennedy.

6. Potamogeton lucens L.

Cherry county.

7. Potamogeton perfoliatus L. Reported only from the northwestern part of the state. Atkinson; Cherry county; Halsey; Whitman.

8. Potamogeton compressus L.

In ponds or streams. Fremont: Greeley Center: Neligh.

9. Potamogeton foliosus Raf. Common especially in alkaline lakes and ponds. Lincoln; Long Pine; Neligh; Paddock; Thedford; Valentine.

10. Potamogeton pusillus L.

In ponds and streams in the sand-hills. Atkinson; Cherry county; Swan Lake: Thedford.

11. Potamogeton diversifolius Raf. Potamogeton hybridus Michx. Lincoln; Springview.

12. Potamogeton dimorphus Raf.

Lincoln.

13. Potamogeton pectinatus L.

Common in the sand-hill regions. Alliance; Cherry county: Crawford; Halsey; Kennedy; Thedford; Valentine; Whitman.

14. Potamogeton interior Rydb. A western form, reported for Nebraska in Gray's Manual.

15. Potamogeton interruptus Kitaibel.

In the mill-pond at Neligh.

2. Ruppia, 49.

1. Ruppia occidentalis S. Wats.

In salt or alkaline ponds. Alliance; Sheridan county.

3. Zannichellia, 50.

1. Zannichellia palustris L.

In ponds throughout the state. Banner county; Broken Bow; Cody's Lakes; Lincoln: Simeon.

LILIALES.

Perianth segments, at least the inner, corolloid.

Perianth segments all corolloid.

Stamens 6, all alike. 1. Liliaceæ. Stamens unlike or only 3. 2. Pontederiaceæ.

Perianth segments unlike, the inner corolloid; the outer green.

Leaves whorled or oyules numerous.

1. Liliaceæ. Leaves not whorled; ovules usually 2 in each cavity; petals

soon withering, but persistent. 3. Commelinaceæ.

Perianth segments scaly, green or brown, or wanting.

Land or marsh plants with a scaly perianth. 4. Juncaceæ. Submerged water plants, perianth often wanting. 5. Naiadaceæ.

1. LILIACEÆ

Lily Family.

(Including Convallariaceæ and Melanthaceæ.)

Flowers perfect; herbs without tendrils, never climbing. (Flowers polygamo-monœcious in Zygadenus.)

Styles distinct, capsule 3-beaked.

1. Zygadenus.

Styles united, or short or wanting. Sepals and petals nearly alike.

Plants with bulbs or corms.
Flowers in umbels with scarious involucres.

Ovules 2 in each cavity of the ovary; foliage onionscented. 3. Allium.

Ovules many in each cavity of the ovary; foliage not onion-scented.

4. Nothoscordum. Flowers not in involucrate umbels, often solitary.

Stems leafy; leaves several.

Tall herbs; anthers attached near the middle, versatile.

5. Lilium.

Low herbs: anthers attached at the base, not versatile. 6. Fritillaria.

Stems with 2 leaves at the base; flowers solitary.

7. Erythronium.

Plants without bulbs or corms, often with root-stocks.

Leaves basal; root-stock short and erect or none.

Plants with a single flower.

Plants with many flowers; leaves evergreen.

9. Yucca. 2. Leucocrinum.

Stems leafy; root-stocks horizontal, elongated.

Real leaves scaly, apparent leaves filiform branches. 10. Asparagus.

Leaves normal.

Flowers terminal or in terminal clusters.

Flowers several to many in a terminal raceme.

11. Vagnera. Flowers 1-3 in a simple umbel. 12. Disporum. Flowers axillary or in axillary clusters.

13. Polygonatum.

Sepals and petals very unlike.

Leaves alternate, long and narrow. Leaves whorled, ovate. 8. Calochortus. 14. Trillium.

Flowers diœcious; mostly vines with tendrils, often woody.

15. Smilax.

1. Zvgadenus. 257.

Ovary partly inferior; perianth segments with obcordate glands.

1. Z. elegans. Ovary superior; glands ovate or semiorbicular. 2. Z. intermedius. 1. Zygadenus elegans Pursh. Death Camas. Common in northwestern part of the state. Gordon; Orella; Sheridan county; Sioux county; Rushville. Death Camas.

2. Zygadenus intermedius Rydb.

Zygadenus gramineus Rydb. In the northwestern part of the state. Both foliage and bulbs poisonous. Berea; Fort Robinson; War Bonnet canyon.

2. Leucocrinum. 261.

Sand-Lilv. 1. Leucocrinum montanum Nutt. Common in the sand-hills in the western part of the state. Chadron; Cheyenne county; Fort Robinson; Frontier county; McCook; Gordon; North Platte; Perkins county.

3. Allium, 262.

Outer coat of the bulb membranous, not fibrous.

Umbel nodding.

1. A. cernuum. 2. A. stellatum. Umbel erect.

Outer coat of the bulb fibrous.

Ovary and capsule not crested.

Umbel composed largely of bulblets.

Umbel with few or no bulblets. 3. A. canadense.

Scape usually over 3 dm. tall; pedicels over 15 mm. long.

4. A. mutabile. Scape usually less than 2 dm. tall; pedicels less than 15 mm. 5. A. nuttallii.

6. A. reticulatum.

Ovary and capsule crested.

Nodding Wild Onion. 1. Allium cernuum Roth. In prairies in the northern part of the state. Ewing; Pine Ridge.

Prairie Wild Onion. 2. Allium stellatum Ker. In prairies in the northern part of the state. Ewing; Pine Ridge. Ridge: Sioux county.

3. Allium canadense L. Common in prairies in the eastern part of the state. Crete; Cushman: Emerson: Grand Island; Lincoln; Wood River.

4. Allium mutabile Michx. Common Wild Onion. Common in meadows and prairies throughout the state. Antelope county: Callaway: Crete: Central City: Lincoln; Ponca; St. Paul.

5. Allium nuttallii S. Wats.

Common in sand-hills. Garden county; Long Pine; Loup City; Neligh.

6. Allium reticulatum Don.

In the northwestern part of the state. Box Butte county; Deuel county: Orella.

4. Nothoscordum, 264.

1. Nothoscordum bivalve (L.) Britton. False Garlic. In the southeastern part of the state. Crete.

5. Lilium, 264.

Flowers erect: leaves mostly alternate. 1. L. umbellatum. Flowers drooping; leaves mostly verticillate. 2. L. canadense. 1. Lilium umbellatum Pursh. Western Wild Lily.

Common in wet valleys in the sand-hills. Dewey Lake; Neligh; Newport: Pullman: Watts Lake in Cherry county.

2. Lilium canadense L. Yellow Wild Lilv. In woods in the eastern part of the state. Dukeville; Otoe county; Weeping Water.

6. Fritillaria, 266.

1. Fritillaria atropurpurea Nutt. Rare in the northwestern part of the state. Fort Robinson; Lavaca; Orella: War Bonnet canvon.

7. Erythronium. 266.

Flowers yellow; inner perianth lobes auricled at the base.

1. E. americanum. Flowers white or pinkish; perianth reflexed; leaves mottled.

2. E. albidum. Flowers bluish or lavender; perianth not reflexed; leaves not mottled.

3. E. mesochoreum.

1. Erythronium americanum Ker. Yellow Adder's-tongue. Rare in the eastern and southern part of the state. Franklin: Lincoln: Peru.

2. Erythronium albidum Nutt. Spring Lily, Dog's-tooth Violet. Fairly common in woods in the southeastern part of the state. Lincoln; Plattsmouth; Saltillo; Weeping Water; Wymore.

3. Erythronium mesochoreum Knerr. Wild Easter Lily. Common locally in the southeastern part of the state. Ravines along the Missouri; Lincoln; Salt Creek bottoms north of Havelock; west of Fremont.

8. Calochortus, 267.

1. C. nuttallii. Anthers obtuse; glands not broader than long. Anthers acute; glands broader than long. 2. C. gunnisoni.

Mariposa Lily. 1. Calochortus nuttallii T. & G. In woods in the northwestern part of the state. Belmont; Fort Robinson; War Bonnet canyon.

2. Calochortus gunnisoni S. Wats. Mariposa Lily. In woods in the northwestern part of the state. Belmont: Fort Robinson; Hat Creek basin; Orella; Squaw canyon.

9. Yucca, 269,

Bear-grass, Spanish Bayonets. 1. Yucca glauca Nutt. Common in sand-hill regions. Alliance; Antelope county; Banner county; Foster; Broken Bow; Chadron; Halsey; Orella; Scotts Bluff; Sheridan and Sioux counties.

10. Asparagus. 270.

Asparagus. 1. Asparagus officinalis L. Often escapes from cultivation. Black Island of Platte river; Lincoln.

11. Vagnera. 271. (Including Smilacina.)

Inflorescence paniculate, flowers 2 mm. long. Inflorescence racemose, flowers 4 to 5 mm. long. 1. V. racemosa. 2. V. stellata.

1. Vagnera racemosa (L.) Morong. Wild Spikenard. Along streams in the eastern part of the state. Homer; Lincoln; Newcastle; Platte river west of Fremont; Weeping Water.

2. Vagnera stellata (L.) Morong. False Solomon's-seal. Woodlands, thickets and meadows throughout the state. Anselmo; Belmont; Emerald; Guide Rock; Hat Creek basin; Lincoln; Oshkosh; Ponca creek; Saltillo; Thedford.

12. Disporum. 272.

1. Disporum trachycarpum (S. Wats.) B. & H. In the northwestern part of the state. Hat Creek basin; Orella; War Bonnet canyon.

13. Polygonatum (Salomonia). 273.

Perianth 10 to 12 mm. long, filaments inserted towards summit of 1. S. biflorum. perianth. Perianth 12 to 30 mm. long, filaments inserted near the middle of the 2. S. commutatum.

1. Polygonatum biflorum (Walt) Ell. Hairy Sol In woods along streams. Cass county; Franklin; Lincoln. Hairy Solomon's-seal.

2. Polygonatum commutatum (R. & S.) Dietr.

Common in woodlands along streams. Nebraska City; Norway; Ponca; Valentine; Weeping Water.

14. Trillium. 274.

1. Trillium nivale Riddell. Wake-robin. Rare along the Missouri river. Bellevue; Weeping Water.

15. Smilax. 275.

Stems herbaceous, without prickles. Stems woody, perennial, with prickles.

1. S. herbacea.

Leaves glaucous. Leaves not glaucous. 2. S. glauca.
3. S. hispida.

1. Smilax herbacea L. Carrion-flower. Common in wooded bluffs. Bellevue; Fremont; Glen; Grand Island; Halsey; Hooker county; Lincoln; Milford; Nebraska City; St. James; Thomas county; Valentine.

Saw Brier.

2. Smilax glauca Walt. Republican river near Franklin.

3. Smilax hispida Muhl. Green-brier. Common in woods all over the state. Crete; Grand Island; Lincoln; Omaha; St. James; Tecumseh; Weeping Water.

2. PONTEDERIACEÆ.

1. Heteranthera. 243.

Leaves rounded, petioled; flower white or blue. Leaves linear, sessile; flowers yellow. 1. H. limosa. 2. H. dubia.

1. Heteranthera limosa (Sw.) Willd. Mud-plantain. Common in mud or shallow water. Fairmont; Lincoln; Minden; Plainview; Sheridan county.

2. Heteranthera dubia (Jacq.) MacM. Water Star-grass. Submerged aquatic of still water. Elm Creek; Glen Rock; Kearney; Neligh.

3. COMMELINACEÆ.

Spiderwort Family.

Petals unequal; fertile stamens 3 or 2. × Petals equal; fertile stamens 6 or 5. Commelina.
 Tradescantia.

1. Commelina, 239.

Sheaths glabrous or nearly so. Sheaths hirsute.

1. C. crispa. 2. C. virginica.

1. Commelina crispa Wooton.

Nebraska, according to Britton's I

Nebraska, according to Britton's Manual.

2. Commelina virginica L. Day-flower. In the sand-hill regions. Flowers open in early morning and wither in the heat of the day. Knox county; Long Pine; Sheridan; Thedford.

2. Tradescantia, 240.

Calyx and pedicels hairy.

Bracts broad and saccate at the base; plants mostly less than 3 dm. high

Bracts narrow, not saccate at the base; plants mostly over 3 dm. high.

2. T. occidentalis.

Calyx and pedicels smooth, except for a tuft of hair at the tip of the

sepals; foliage glaucous; plants tail.

3. T. reflexa.

1. Tradescantia bracteata Small.

Common, especially in sandy soil along railroads. Ainsworth; Callaway; Ewing; Garden county; Inman; Lincoln; Red Cloud.

2. Tradescantia occidentalis (Britton) Smyth. Western Spiderwort. Common all over the state. Flowers open early in the morning and usually wilt before noon. Anselmo; Central City; Fairbury; Fremont; Kearney; Lincoln; Newcastle; Pine Ridge; Thedford.

3. Tradescantia reflexa Raf.

Common along railroads south of Lincoln.

4. JUNCACEÆ.

1. Juneus, 244.

Rushes.

Inflorescence apparently lateral.

Perianth green or straw-colored; seeds 0.5 mm. long.

1. J. filiformis.
2. J. balticus.

Perianth partly brown; seeds 1 mm. long. Inflorescence evidently terminal.

Leaves not septate.

Flowers bibracteolate, not in true heads.

Annuals; inflorescence more than one-third the height of the plant; plants about 2 dm. high.

3. J. bufonius.
Perennials; inflorescence not one-third as long as the plant.

Auricles at the top of the sheath prolonged beyond the point of insertion, often 2 mm. long

4. J. tenuis.

Auricles scarcely prolonged beyond point of insertion.

Auricle membranous, whitish; perianth scarcely spreading.

5. J. interior.

Auricles cartilaginous, yellow or yellowish brown; perianth spreading. 6. J. dudleyi.

Flowers not bibracteolate; in true heads.

Stamens 3.

Petals setiform; acuminate at the apex.
Petals obtuse or slightly mucronate.

7. J. setotus.
Stamens 6.
9. J. longistylis.

Leaves septate.

Branches of the inflorescence short, rarely more than twice the

diameter of the heads.

Heads 7-8 mm. in diameter; petals usually longer than the sepals.

10. J. nodosus.

Heads over 10 mm. in diameter; sepals longer than the petals.

Branches of the inflorescence long, many times as long as the

Branches of the inflorescence long, many times as long as the diameter of the heads.

12. J. richardsonianus.

1. Juncus filiformis L.

Reported from Banner county.

2. Juneus balticus Willd.

On sand-bars and sandy margins of lakes and streams. Alliance; Broken Bow; North Platte; Oshkosh; Valentine; Wood River.

3. Juncus bufonius L. Toad Rush. Common in wet places in the sand-hills. Banner county; Custer county; North Platte; Pine Ridge; Sheridan county; Valentine.

4. Juncus tenuis Willd.

Common in wet meadows throughout the state. Banner county;
Broken Bow; Crete; Hat Creek basin; Hooker county; Kennedy;
Lincoln; Weeping Water.

5. Juncus interior Wiegand.

This and the following are sometimes included in Juncus tenuis. Boelus; Red Cloud; Riverton.

6. Juncus dudleyi Wiegand.

Common in meadows over most of the state. Callaway; Gordon; Long Pine; Loup City; Scotia; Thedford; Valentine; Wood River; Wymore.

7. Juncus setosus (Coville) Small.
Juncus marginatus var. setosus Coville.

Reported only from Long Pine.

8. Juncus marginatus Rostk.

In moist places mostly in the sand-hills. Brewster; Dismal River; Ewing; Long Pine; Minden; Valentine.

9. Juneus longistylis Torr.

In meadows in the western part of the state. Ewing; Sheridan county; Valentine.

10. Juncus nodosus L.

Common, often forming a sod in wet meadows. Anselmo; Boelus; Long Pine; Thedford; Valentine.

11. Juncus torreyi Coville.

Common in wet soil all over the state. Ainsworth; Anselmo; Chadron; Haigler; Lincoln; Long Pine; Louisville; Minden; Mullen; Pine Ridge.

12. Juncus richardsonianus Schult.

Rare in the sand-hill regions. Long Pine.

5. NAIADACEÆ.

1. Naias. 50.

Seeds shining, with 30-50 rows of faint reticulations. 1. N. flexilis. Seeds dull, with 16-20 rows of strongly marked reticulations.

1. Naias flexilis (Willd.) Rost. & Schmidt.
Found mostly in the clear streams and ponds of the sand-hill regions.
Cherry county; Greenwood; Wood Lake.

2. Naias guadalupensis (Spreng.) Morong. In a lake pear Whitman.

ARALES.

Plants with stem and leaves.
Flowers in a spike or spadix.

1. A. triphyllum.

Spike fleshy, i. e. a spadix; flowers not accompanied by bristles; fruit a berry.

Spike not fleshy; flowers accompanied by bristles; fruit not a berry.

Slowers in globular heads.

Plants reduced to leaf-like structures called thalli.

Sparganiaceæ.

4. Lemnaceæ.

1. ARACEÆ.

Arum Family.

Spathe surrounding the spadix; flowers monœcious or diœcious, leaves compound.

1. Arisæma. Spathe leaf-like not enclosing the spadix; flowers perfect, leaves simple.

2. Acorus.

1. Arisæma. 229.

Leaves with three segments.

Leaves with more than three segments.

2. A. dracontium.

1. Arisæma triphyllum (L.) Torr. Jack-in-the-pulpit, Indian Turnip.

Moist places in woods in the eastern part of state. Crete; Fremont;

Lincoln: Milford: Weeping Water.

2. Arisæma dracontium (L.) Schott. Dragon-root. In similar places as last, but less common. Crete; Saltillo; Weeping Water.

2. Acorus. 231.

1. Acorus calamus L. Calamus, Sweet Flag. In swampy places in the southeast part of the state. Lincoln; Nebraska City; Platte River west of Fremont.

2. SPARGANIACEÆ.

1. Sparganium. 39.

1. Sparganium eurycarpum Engelm.

Common in wet places and in shallow water. Anselmo; Belmont; Cherry county; Cedar county; Kearney; Lincoln; Peru; Thedford; Valentine.

3. TYPHACEÆ.

1. Typha. 38.

1. Typha latifolia L. Common Cat-tail. Common along streams, ditches and in wet ground. Alliance; Anselmo; Belmont; Lincoln; Norway; Peru; Thedford; Wahoo.

4. LEMNACEÆ.

Duckweed Family.

Rootlets several.

Rootlets not more than one.

Rootlets usually present; thallus over one mm. long.

Rootlets wanting; thallus less than one mm. long.

3. Wolffia.

1. Spirodela. 232.

Greater Duckweed. 1. Spirodela polyrhiza (L.) Schleid. Common on the surface of ponds and slow streams. Anselmo; Fremont; Lincoln; Long Pine; Thedford; Valentine.

2. Lemna, 232,

Duckweeds.

Thallus with a stalk-like projection at the base. Stalk long, thallus 5 to 15 mm. long. 1. L. trisulca. Stalk short, thallus less than 5 mm. long. 2. L. perpusilla. Thallus not stalked.

Thallus nearly symmetrical, green or purplish beneath. 3. L. minor. 4. L. gibba. Thallus unsymmetrical, pale beneath.

1. Lemna trisulca L. Common in ponds throughout the state. Ashland; Cherry county: Fremont; Greenwood; Harrison; Newark; Thedford.

2. Lemna perpusilla Torr.

Thomas county.

3. Lemna minor L.

Common on the surface of ponds or slow streams. Anselmo; Banner county; Cherry county; Holt county; Long Pine; Pine Ridge; Valentine.

4. Lemna gibba L. In ponds in the sand-hill regions. Kennedy; Merriman; Thomas county.

3. Wolffia. 233.

1. Wolffia punctata Griseb. In ponds, rare. Bellevue; Long Pine.

POALES. (GRAMINALES.)

Leaves 3-ranked, with closed sheaths; stems usually solid; fruit an achene, i. e. seed free from ovary wall.

1. Cyperaceæ. Leaves 2-ranked, with open sheaths; stems usually hollow; fruit a 1. Cyperaceæ. caryopsis or cereum, i. e. seed united to ovary walls. 2. Poaceæ.

1. CYPERACEÆ.

Sedge Family.

The sedges closely resemble the grasses and are often confused with them. Most sedges prefer a moist soil, but a few are xerophytic. In low meadow lands they often furnish a large part of the forage, but are inferior to the true grasses for hay and pasture.

Flowers of the spikelets all, or at least some of them, perfect; achene not in a perigynium.

Perianth of scale-like sepals.

Perianth of 3 scales and 3 bristles; stamens three. 1. Fuirena. Perianth of a single hyaline scale; no bristles; only one stamen. 2. Hemicarpha. Perianth of bristles or wanting; not of scales.

Scales of the spikelets spirally imbricated.

Base of style persisting as a tubercle on the achene.

Spikelets solitary; stems without leaves. 3. Eleocharis. 4. Stenophyllus.

Spikelets in a terminal umbel. Base of the style not persistent as a tubercle on the achene. 5. Fimbristylis. Style swollen at the base; perianth none. Style not swollen at the base; perianth usually present.

Bristles, if present, not long and hairlike. 6. Scirpus. Bristles numerous, long, hair-like. 7. Eriophorum.

Scales of spikelets in 2 ranks. Inflorescence axillary; perianth of bristles. Inflorescence terminal; perianth wanting. 8. Dulichium. 9. Cyperus. Flowers monœcious or diœcious; achene in a perigynium. 10. Carex.

1. Fuirena, 182.

1. Fuirena simplex Vahl. In wet soil, mostly along streams. Kearney; Minden.

2. Hemicarpha. 183.

Scales brown, with short spreading or recurved tips. 1. H. micrantha.

Scales pale with squarrose awns equal to their own length. 1a. H. micrantha aristulata.

1. Hemicarpha micrantha (Vahl.) Pax. In moist soil over most of the state; frequent on sand-bars. Atkinson; Cherry county; Ewing; Fremont; Long Pine; Minden.

1a. Hemicarpha micrantha yar. aristulata Coville. Long Pine.

3. Eleocharis. 167.

Spike-rushes.

Achenes lenticular; style branches usually 2.

Annuals without rootstocks.

nnuals without rootstocks.

Bristles much longer than the achene.

Bristles about as long as the achene.

Bristles about as long as the achene.

2. E. engelmanni.

Bristles about as long as the achene. Bristles rudimentary or wanting. Perennials with horizontal rootstocks.

3. E. palustris. Culm stout; spikelet 6-25 mm. long.

Culm slender to filiform; spikelet 4-10 mm. long. 3a. E. pal. glaucescens.

Achenes triangular; style branches 3. Spikelets flattened, 3-9 flowered; rootstock filiform. 4. E. acicularis.

Spikelets terete, many-flowered; rootstock stout. 5. E. acuminata.

1. Eleocharis obtusa (Willd.) Schultes. In wet places in the eastern part of the state. Lincoln; Minden; Nebraska City; Nemaha.

2. Eleocharis engelmanni Steud.

Minden.

2a. Eleocharis engelmanni var. detonsa Gray. Springview.

3. Eleocharis palustris (L.) R. & S.

Common in wet ground throughout the state. Arabia; Lincoln; Red Cloud; St. Paul; Springview; Thedford.

3a. Eleocharis palustris var. glaucescens (Wild.) A. Gray. Common in wet places all over the state. Anselmo; Arabia; Bassett; Bordeaux; Crawford; Ewing; Long Pine; Natick; Pauline.

4. Eleocharis acicularis (L.) R. & S.

In wet places throughout the state. Anselmo; Bellevue; Deuel county; Lincoln; Lodge Pole creek; Louisville; Minden; Nebraska

5. Eleocharis acuminata (Muhl.) Nees.

In wet places, mostly in the western part of the state. Arabia; Ewing; Kennedy; Long Pine; Minden; Valentine.

4. Stenophyllus, 173.

1. Stenophyllus capillaris (L.) Britton.

In moist soil over most of the state, not common. Atkinson; Ewing; Minden.

5. Fimbristylis. 173.

1. Fimbristylis interior Britton.

In wet soil over most of the state. Franklin; along Horse creek in Scotts Bluff county; Newark; Scotia Junction; Valentine.

6. Scirpus, 174.

Club-rushes.

Involucre of a single bract or wanting.

Spikelets few, 1 to 12, appearing lateral.

Culm terete, bristles none; annuals.

1. S. hallii.
Culm sharply triangular, bristles 2-4; perennials with root-2. S. americanus.

Spikelets numerous, umbellate.

stocks.

Achene 2 mm. long, nearly equalling the scale. 3. S. validus. Achene 2.5-3 mm. long, much exceeded by the scale.

4. S. occidentalis.

Involucre of two or more bracts.

Spikelets large, 1-5 cm. long, 5-10 mm. thick.

Achene lenticular; spikelets capitate. 5. S. paludosus. Achene sharply triangular; spikelets umbellate. 6. S. fluviatilis.

Spikelets small, 2-15 mm. long, 1-3 mm. thick.

Scales dark brown, one-third longer than achene.

7. S. atrovirens. Scales light brown, twice as long as the achene. 8. S. pallidus.

1. Scirpus hallii A. Gray.

Not common. Holt county: Kennedy.

2. Scirpus americanus Pers.

Common in the western part of the state, halophytic and does well in alkaline pools. Anselmo; Aten: Broken Bow; Franklin; Hackberry Springs in Banner county; Hat Creek basin; Louisville; Red Cloud: Thedford.

3. Scirpus validus Vahl. Great Bulrush. Common in marshes. Broken Bow; Cherry county; Lincoln; Nebraska City; Newcastle; Scotts Bluff county; Thedford; Valentine; Wahoo. 4. Scirpus occidentalis (Wats.) Chase.

Kearney: Thedford.

5. Scirpus paludosus A. Nels. Prairie Bulrush. Alliance; Kearney county; in Lone Tree lake near Kennedy; Laurel; Lincoln; Newark; St. James; Whitman. Prairie Bulrush.

River Bulrush. 6. Scirpus fluviatilis (Torr.) A Gray. In wet, marshy places over most of the state. Kennedy; Merriman. 7. Scirpus atrovirens Muhl.

Common in wet places. Beatrice; Lincoln; Minden; Nehawka: St. James; Weeping Water.

8. Scirpus pallidus (Britton) Fernald.

Cammon in marshy places. Broken Bow; Crawford; Hitchcock county; Hooker county; Nebraska City; Talmage; Thedford; Wahoo.

7. Eriophorum, 180.

Leaves 1.5 mm. wide or less; spike in fruit not over 2 cm. long.

1. E. gracile.

Leaves 1.5-4 mm. wide; spike in fruit 2.5-4 mm. long.

2. E. angustifolium.

Slender Cotton-sedge. 1. Eriophorum gracile Koch. In bogs in the sand-hill regions. Kennedy; Lavaca; Simeon; Thedford.

2. Eriophorum angustifolium Roth.

In bogs in the sand-hill region. Arabia; Kennedy.

8. Dulichium, 166.

1. Dulichium arundinaceum (L.) Britton.

In wet soil, not common. Bone Creek valley; Endicott; Ewing; Kennedy. 9. Cyperus. 159.

Styles 2-cleft; achenes lenticular.

Stamens usually 2, scales dull, styles long exserted. 1. C. diandrus. Stamens 3, scales shiny, styles scarcely exserted. 2. C. rivularis. Styles 3-cleft; achenes triangular.

Annuals without corms or rootstocks.
Stamen 1: umbels usually simple.

Tips of the scales awnlike, spreading. 3. C. inflexus. Tips of the scales not prolonged into awns. 5. C. acuminatus. Stamens 3; umbels usually compound.

Bracts of the involucre but little exceeding the umbel; scales not overlapping. 6. C. engelmanni.

Bracts of the involucre much exceeding the umbel, flower scales overlapping.

Wings of the rachilla separating as internal scales which persist after the flower scales have fallen off.

8. C. erythrorhizos. Wings persistent, not forming internal scales.

9. C. speciosus.

Perennials with corms or rootstocks. With scaly tuber-bearing rootstocks.

7. C. esculentus. Without rootstocks, perennial by basal corms.

Achene 3-4 times as long as wide.

10. C. strigosus.

Achenes about twice as long as wide.

Spikelets flat, in loose spikes at the ends of the rays of umbels.

4. C. schweinitzii.
Spikelets terete, or compressed, in capitate clusters on the

rays. Scales pale green; achene % as long as scale.

11. C. filiculmis.

Scales brown, shining; achene as long as scale.

12. C. houghtonii.

1. Cyperus diandrus Torr. Cypress-grass. Common along streams over most of the state, especially on sandbars. Callaway; Franklin; Kennedy; Long Pine; St. Paul; Valentine.

2. Cyperus rivularis Kunth. Common in wet soil throughout the state. Minden; Nebraska City; Pishelville; Richardson county; Thedford; Valentine.

3. Cyperus inflexus Muhl.
Cyperus aristatus Rottb.
Occurs over the whole state, but most abundant in the sand-hills.
Callaway; Franklin; Lincoln; Minden; Mullen; Pine Ridge; Red
Cloud; Thedford; Valentine.

4. Cyperus schweinitzii Torr. Common in dry sandy soil. Arapahoe; Broken Bow; Ewing; Franklin; Foster; Louisville; Minden; Plummer Ford; Red Cloud; Thedford; Valentine.

5. Cyperus acuminatus Torr. & Hook. Common in moist soil over most of the state. Edgar; Ewing; Franklin; Lincoln; Loup City; Minden; Valentine.

6. Cyperus engelmanni Steud. Rare in wet soil. Kennedy.

7. Cyperus esculentus L.

Common in moist soil over most of the state; Callaway; Ewing; Kennedy; Lincoln; Wood Lake; Grand Rapids.

8. Cyperus erythrorhizos Muhl. In wet soil in the eastern part of the state. Ewing; Lincoln; Niobrara River; Norfolk.

9. Cyperus speciosus Vahl.
Cyperus ferax Rich.
In marshes in the southeastern part of the state. Crete; Columbus; Hardy; Kennedy; Lincoln; Republican Valley; Red Cloud; Valentine.

10. Cyperus strigosus L. Over most of the state, common along streams in the sand-hills. Cody's Lakes; Columbus; Ewing; Minden; Nebraska City; Niobrara River; Republican; Thedford.

11. Cyperus filiculmis Vahl.
Fairly common in the eastern part of the state. Columbus; Ewing; Hardy; Lincoln; Louisville; Minden; Nebraska City; Red Cloud; Republican City.

12. Cyperus houghtonii Torr. Natick.

31. C. durifolia.

17. C. davisii.

8. C. lacustris.

10. Carex. 189.

Sedges.

Achenes mostly triangular, never lenticular; stigmas three. Perigynia long-beaked, beak usually as long as the body.

Perigynia gradually narrowed into the beak.

Beak entire.

Beak toothed. Teeth small, never wide spreading.

1. C. lupulina. Perigynia about 12 mm. long. 2. C. lurida. Perigynia about 8 mm. long.

Teeth longer, often spreading.

Scales long awned, awn longer than body of scale.

3. C. hystricina. Teeth short, not wide spreading. Teeth longer, wide spreading, mature perigynia re-4. C. comosa. flexed.

Scales awnless or short awned.

Teeth not wide spreading; perigynia usually rough. 6. C. trichocarpa.

Teeth longer, wide spreading; perigynia smooth. 7. C. atherodes.

Perigynia abruptly narrowed into the beak.

Scales about as long as the perigynium; spikes not globose. 18. C. longirostris.

Scales about half as long as the perigynium; spikes globose. 5. C. squarrosa.

Perigynia with short beaks, or beakless; beak much shorter than the body.

Beaks of the perigynia with two teeth. Perigynia glabrous or nearly so.

Teeth very small, scale long-awned. Teeth larger, scale short-awned.

Perigynia pubescent. Teeth evident, perigynia densely pubescent. 9. C. lanuginosa.

Teeth minute, perigynia less pubescent.

Staminate spike over 1 cm. long. 29. C. pennsylvanica.

Staminate spike small, less than 1 cm. long. 30 C. varia. Beaks of perigynia entire or wanting (See No. 29 and 30 above.) Perigynia 4-5 mm. long.

19. C. grisea. Pistillate spikes dense, many-flowered. Pistillate spikes loose, with few scattered flowers. 20. C. amphibola.

Perigynia usually not over 3 mm. long.

Spikes 2 or more, the upper staminate. 16. C. limosa. Pistillate spikes drooping.

Pistillate spikes not drooping.

Pistillate spikes dense flowered. Bracts with blades much longer than the subtended

spikes. Bracts mostly overtopping the terminal staminate spike. 21. C. granularis.
Bracts rarely overtopping the terminal staminate

22. C. crawei. Bracts with shorter blades, rarely more than twice as

long as the subtended spike.

colored margins.

Pistillate spikes loosely few-flowered.

tipped.

Perigynia about 3 mm. long; scales green with

Perigynia less than 3 mm. long; scales dark colored with green margins or green midrib.

Scales brown with lighter margins, not awn-tipped. 10. C. parryana. Scales black or brown with green midrib, awn-

25. C. meadii.

11. C. buxbaumii.

flowers.

Pistillate spikes not globose, usually over 1 cm. long. Tips of perigynia bent outward. With a bent beak. 23. C. laxiflora. Nearly or quite beakless. 24. C. tetanica. Tips of perigynia straight or nearly so. Perigynia 3-4 mm. long. 23. C. oligocarpa. Perigynia 2 mm. long. 27. C. aurea. Pistillate spikes globose, 4-8 mm. long. 28. C. eburnea. Spikes solitary, scales with white scarious margins. 32. C. filifolia. Achenes lenticular; stigmas two. Spikes unlike, the upper usually staminate and the lower pistillate. Pistillate spikes densely flowered. Orifice of perigynia entire or nearly so. Scales green. 15. C. aquatilis. Scales colored. Scales equal to the perigynia in length, obtuse to acumi-12. C. stricta. Scales longer than perigynia, very acute. 13. C. haydeni. Orifice of perigynia toothed. Teeth larger, perigynia ribbed when mature; scales acute. 14. C. nebraskensis. Teeth minute; scales blunt, shorter than the perigynia. 45. C. interior. Pistillate spike few-flowered. 27. C. aurea. Spikes alike or nearly so, all with both staminate and pistillate Staminate flowers above the pistillate, rarely mixed with them. Spikes forming a globose head. Perigynia about 2 mm. long, beak entire, edges not serrate. 33. C. stenophylla. Perigynia 3 mm. long, or more. Scales 2-4 times as long as perigynia. 34. C. douglasii. Scales little longer than perigynia. 44. C. muhlenbergii. Spikes not forming globose heads. Perigynia over 3 mm. long, or scale only half as long as the perigynium. Beak of perigynium much longer than body, usually 2-4 times as long. Base of perigynium not thickened, beak about twice as long as body of perigynium. 35. C. stipata. Base of perigynium thickened, disc-like; beak 3-4 times as long as the body. 36. C. crus-corvi.

Beak of perigynium short, about half as long as the body. Scales equal to or longer than the perigynia.

Scales brown, with scarious margins. 41. C. sartwellii.

Scales green or only tinged with brown.

44. C. muhlenbergii. Perigynium wing-margined. 39. C. gravida. Perigynium not wing-margined.

Scales about half as long as perigynia.

42. C. rosea. Leaves 1-3 mm. wide. Leaves 4-9 mm. wide; perigynium wing-margined to the base; spikes not in heads. 43. C. sphagnoides.

Perigynia about 2 mm. long or less.

Leaves less than 2 mm. wide.

Beak of perigynium shorter than the body.

37. C. marcida.

Beak of perigynium as long as the body.

38. C. teretiuscula. 40. C. vulpinoides.

Leaves 2-5 mm. wide. Staminate flowers below the pistillate, sometimes mixed with them in C. siccata.

Perigynia lanceolate, wing-margined.

Spikes oblong or oval.

46. C. tribuloides. Spikes blunt, greenish brown. 47. C. scoparia. Spikes pointed, bright brown. 48. C. cristatella. Spikes subglobose.

Perigynia ovate or orbicular, its body as wide as long.

Beak as long as body of perigynium. 49. C. straminea.

Beak not over half as long as body.

50. C. festucacea Heads brownish, achene sessile. Heads silvery, green or yellowish, achene stalked.

51. C. bicknellii.

1. Carex lupulina Muhl.

In swampy places, mostly in the eastern part of the state. Callaway; Fremont; Grand Island.

2. Carex lurida Wahl.

In marshy places in the eastern part of the state.

3. Carex hystricina Muhl.

Common throughout the state in marshy places. Aten; Broken Bow; Central City; Crawford; Ft. Robinson; Halsey; St. Paul; Valentine.

4. Carex comosa Boott.

Swampy places in the eastern part of the state. Beatrice; Kennedy; Oasis; Simeon.

5. Carex squarrosa L.

Swampy places in the eastern part of the state. Lincoln.

6. Carex trichocarpa Muhl.

In wet meadows, especially in the eastern part of the state. Often forming sod. Ashland; Elmwood; Emerson; Minden; Nebraska City; Neligh.

7. Carex atherodes Spreng.

Carex aristata R. Br.

Wet meadows in eastern part of state. Ashland; Kennedy; Mullen; Nemaha.

8. Carex lacustris Willd.

In the eastern part of the state in swales and marshes. Callaway; Laurel; Nemaha; Otoe county; Scotia Junction.

9. Carex lanuginosa Michx.

Common in wet meadows throughout the state. Anselmo; Ashland; Crawford; Custer county; Harrison; Minden; Nebraska City; Pine Ridge; Red Cloud; Sheridan county; Thedford; 20 miles south of Whitman.

10. Carex parryana Dewey. Platte meadows near Minden.

11. Carex buxbaumii Wahl.

In Holt county near Kirkwood postoffice.

12. Carex stricta Lam.

Wet meadows throughout the state, except in the extreme western part. Emerson; Johnstown; Lincoln; Minden; Norway; Valentine.

13. Carex haydeni Dewey.

Carex stricta var. decora Bailey.

Minden; Grand Island.

14. Carex nebraskensis Dewey.

Common in wet soil in the western part of the state. Anselmo; Arabia; Broken Bow; Callaway; Kennedy; Hat Creek basin; Lawrence Fork; Mullen; Pine Ridge; Thedford; Valentine.

15. Carex aquatilis Wahl. In a marsh near Kennedy.

16. Carex limosa L.

Rare in a marsh near Kennedy.

17. Carex davisii Schwein. & Torr.

Thickets and meadows in eastern part of the state. Lincoln; Otoe county.

18. Carex longirostris Torr.

Moist places along streams. Dismal River; Nebraska City; along the Missouri in northeastern Nebraska; Fremont; Valentine.

19. Carex grisea Wahl.

In woods and meadows in eastern part of the state. Ashland; Crete; Diller; Nebraska City; Nemaha; Nelson; Pauline.

20. Carex amphibola Steud.

Moist soil in the eastern part of the state. Nebraska City.

21. Carex granularis Muhl.

In moist meadows, mostly in the eastern part of the state. Burwell; Fremont; Kennedy; Loup City; Plummer Ford; Red Cloud; St. Paul.

22. Carex crawei Dewey.

Meadows and banks. Bassett; Burwell; Central City; Kearney county; Loup City; Merriman; Minden; O'Neill; Scotia Junction; Valentine.

23. Carex oligocarpa Schk.

In the southeastern part of the state. Nebraska City.

24. Carex tetanica Schk.

In low meadows. Minden; Oshkosh.

25. Carex meadii Dewey.

Throughout the state, except in the extreme western part. Broken Bow; Crete; Lincoln; Minden; Nebraska City; O'Neill; Wood River.

26. Carex laxiflora Lam.

Most common in the eastern part of the state, especially along the Missouri. Bordeaux; Hardy; Johnstown; Lincoln; Long Pine; Nebraska City: Plummer Ford.

27. Carex aurea Nutt. Common in low meadows in the western part of the state. Callaway; Crawford; Fort Niobrara; Hat Creek basin; Loup City; Pine Ridge; Sioux county; Thedford; Valentine.

28. Carex setifolia (Dewey) Britton. Bluffs of Missouri in northeastern Nebraska; Fort Niobrara; Merriman: Scotia.

29. Carex pennsylvanica Lam. Very common on the prairies. Crete; Deuel county; Gordon: Nebraska City; Ponca; Red Cloud; Sargent; Thedford; Valentine.

30. Carex varia Muhl. Rare on dry wooded slopes. Fort Niobrara; Long Pine; Nebraska City; Neligh.

31. Carex durifolia var. subrostrata Bates.

In wooded canyons. Long Pine; Merriman; Valentine.

32. Carex filifolia Nutt.

Dry prairies in western Nebraska, mostly in the foot-hill regions. Box Butte county; Deuel county; Fort Robinson; Gordon; Hitchcock county; Long Pine; Stratton; Valentine.

33. Carex stenophylla Wahl.

Common on high, dry prairies in the western part of the state. Crawford: Fort Robinson; Franklin; Johnstown; Kennedy; Long Pine; Minden; Riverton; Thedford; Valentine.

34. Carex douglasii Boott. In the western part of the state. Anselmo; Crawford; Sheridan county; Thedford: Valentine.

35. Carex stipata Muhl.

In wet soil over most of the state. Anselmo; Crete; Red Cloud; St. Paul; Thedford; Valentine.

36. Carex crus-corvi Shuttlw. Rare in wet soil in the southeastern part of the state. Lincoln; Nemaha.

37. Carex marcida Boott. Abundant in dry soil and meadows in the western part of the state. Alliance; Anselmo; Broken Bow; Cody; Franklin; Minden; Oasis; O'Neill; Red Cloud; St. Paul; Thedford.

38. Carex teretiuscula Gooden. In the western part of the state. Burwell; Red Cloud; Simeon; Thedford.

39. Carex gravida Bailey. Very common in dry woods and prairies, perhaps the most wide-spread species of the state. Broken Bow; Callaway; Diller; Kear-ney county; Lincoln; Minden; Nebraska City; Nemaha; Ponca; Valentine; War Bonnet canyon.

40. Carex vulpinoidea Michx.

Throughout the state, common in wet meadows and swampy places in the eastern part. Anselmo; Bloomington; Elmwood; Nebraska City; Nemaha; O'Neill; Ponca; Scotia; Talmage.

41. Carex sartwellii Dewey.

In wet meadows. Arabia; Kennedy; O'Neill.

42. Carex rosea Schk.

In eastern part of state, common on bluffs of the Missouri. Fremont; Lincoln; Nebraska City; Nemaha; Ponca; Weeping Water.

43. Carex sparganioides Muhl.

In woods in the southeastern part of the state. Nebraska City; Lincoln; Nemaha.

44. Carex muhlenbergii Schk.

In dry woods in the eastern part of the state. Nebraska City; Nemaha.

45. Carex interior Bailey.

By springs and in wet meadows. Burwell; Callaway; Simeon; Thedford; Valentine.

46. Carex tribuloides Wahl.

Rare in low meadows. Ewing; Lincoln; Long Pine; Nemaha.

47. Carex scoparia Schk.

Common on low, wet meadows. Ewing; Grand Island; Long Pine; Minden; Springview; Thedford; Valentine.

48. Carex cristatella Britton.

In meadows and bogs, not common. Ewing; Lincoln; Long Pine; Loup City; Nebraska City; Neligh; Norfolk; St. Paul; Wabash; Weeping Water.

49. Carex straminea Willd.

Minden; Neligh: Thedford: Valentine.

50. Carex festucacea Willd.

Common in moist or dry soil throughout the state. Anselmo; Beatrice; Ewing; Lincoln; Nemaha; Nebraska City; O'Neill; Otoe county; Ponca; Valentine; Weeping Water.

51. Carex bicknellii Britton.

In the eastern part of the state. Ewing; O'Neill; Weeping Water.

2. POACEÆ. (GRAMINEÆ.)

Grass Family.

This is a very large family containing about 3,500 species. Economically it is the most important family of plants, as it includes all our cereals and many native and cultivated forage plants.

Key to the Tribes.

Spikelets or clusters of spikelets, in two rows, sessile, in true spikes.

The two rows on one side of the straight or curved rachis, forming a one-sided spike. (Some Paniceæ may appear to belong here.)

3. Chlorideæ.

The two rows on opposite sides of the zigzag rachis which is terminal on the main stems.

2. Hordeæ.

Spikelets not in two rows, some or all usually pediceled, inflorescence rarely spicate.

Spikelets 2 to many-flowered; the lowest flower always perfect.
Flowering scales generally longer than the empty scales; awnless or straight awned at or near the apex. Flowering scales shorter than the empty scales, usually with a 4. Aveneæ. bent dorsal awn.

Spikelets 1 or 2-flowered, when 2-flowered the lower staminate or rudimentary.

Palet keeled, similar to the flowering scale; empty scales small 8. Oryzeæ. or wanting. Palet quite different from the flowering scale; empty scales

usually present.

Flowers, at least some of them, perfect. Spikelets alike, all with a perfect flower.

5th scale enclosing the flower, 3rd and 4th small, often 5. Phalarideæ. reduced to bristles.

3rd or 4th scale enclosing the flower.

Flowering scales if indurated awned, the 3rd scale en-7. Agrostideæ. closing the flower. Flowering scales indurated, awnless: the 4th scale 6. Paniceæ.

usually enclosing the perfect flower. Spikelets of two kinds, some perfect and sessile, accompanied by 1 or 2 pediceled, staminate or rudimentary 9. Andropogoneæ.

Flowers all staminate or pistillate; the staminate above the 10. Maydeæ. pistillate.

Tribe 1. FESTUCEÆ.

Styles short with plumose stigmas protruding at the sides of the scales; inflorescence various, not of axillary clusters. Rachilla, if hairy, with hair much shorter than the flowering scales.

Flowering scales 5-many nerved.

Upper scales, if empty, narrow and not enclosing each other.

Flowers perfect.

Spikelets not in dense one-sided clusters.

Styles attached below the apex of the ovary; flowering scales usually over 6 mm. long; leaf-sheaths often 1. Bromus. closed.

Styles attached to the tip of the ovary; flowering scales

6 mm. long or less.

Flowering scales rounded on the back. Flowering scales without hairs at the base.

Flowering scales acute, pointed or usually awned at the apex. Flowering scales obtuse or hyaline at the apex.

Scales obscurely 5-nerved, styles none.

3. Puccinellia.

Scales distinctly 7-nerved, styles present. 4. Panicularia.

Flowering scales with tufts of hair at the base. 5. Scolochloa. Flowering scales more or less keeled. 6. Poa.

Spikelets collected in dense one-sided clusters. 7. Dactylis.

Flowers diœcious, spikelets almost sessile. 8. Distichlis. Upper scales of the spikelet empty, broad and enclosing each others. 10. Melica Flowering scales 1-3 nerved, or sometimes with faint intermediate nerves. Lateral nerves of the flowering scales glabrous. Flowering scales without long hairs at the base. Growing in water or wet soil; flowering scales erosetruncate. 11. Catabrosa. Growing in wet or dry soil, not aquatic. Flowering scales leathery; seed exserted; growing in 9. Korvcarpus. Flowering scales not leathery; seed not exserted. Inflorescence a contracted spike-like panicle. Second empty scale narrow, acute. 12. Koeleria. Second empty scale broad, rounded or obtuse at the apex, broader than the flowering scales. 13. Sphenopholis. Inflorescence an open panicle. 14. Eragrostis. Flowering scales with long hairs at the base. 16. Redfieldia. Lateral nerves of the flowering scales hairy. Spikelets sessile or nearly so on the primary branches of the inflorescence. 15. Diplachne. Spikelets on pedicels on the primary branches of the inflorescence. Flowering scales with short teeth, the midrib excurrent as a short point. 17. Tridens. Flowering scale deeply 2-toothed, awned, awn longer than the teeth. 18. Triplasis. Rachilla hairy, hairs longer than the flowering scales. 19. Phragmites. Styles long, protruding at the end of the scales, spikelets in the axils of clustered leaves; a low xerophytic grass. 20. Munroa. 1. Bromus, 148, Flowering scales with compressed keels. 1. B. breviaristatus. Flowering scales rounded on the back, at least below. Second empty scale 5-7-nerved, the first 3-nerved. Flowering scales nearly as wide as long. Flowering scales much longer than wide. 2. B. brizæformis. Flowering scales glabrous or nearly so. Awn straight. Sheath glabrous. Sheath pubescent. 3. B. secalinus. 4. B. racemosus. Awns bent at the base. 5. B. squarrosus. Flowering scales pubescent. Awns 2-3 mm. long. 6. B. kalmii. Awns 10 mm, long. 7. B. hordeaceus.

Second empty scale 3-nerved. First empty scale 3-nerved.

First empty scale 1-nerved.

Awns shorter than the flowering scales. Inflorescence drooping, scales awned.

9. B. ciliatus.

8. B. porteri

Inflorescence not drooping, scales awnless or nearly so; leaves with a mark like an inverted W on the blade.

10. B. inermis.

Awns longer than the flowering scales.

1. Bromus breviaristatus (Hook.) Buckl.
Bordeaux; Belmont; Elmwood; Newcastle.

2. Bromus brizæformis Fisch & Mey. Ruderal in the sand-hills. Lincoln.

- 3. Bromus secalinus L. Cheat; Chess. Introduced in various places in the state as a weed. Crawford; Lincoln; Minden; Newcastle; Talmage; Wabash.
- 4. Bromus racemosus L. Lincoln.
- 5. Bromus squarrosus L. Introduced in a few places but not common. Alliance; Long Pine; St. Paul.
- 6. Bromus kalmii A. Gray.
 In the foot-hill region. Hat Creek basin; War Bonnet canyon.
 Soft Chess.

7. Bromus hordeaceus L. Introduced but not very common. Long Pine; O'Neill.

8. Bromus porteri (Coulter) Nash.
Common in the western parts of the state. Belmont; Franklin;
Valentine.

9. Bromus ciliatus L. Wood Chess. Common throughout the state. Arapahoe; Belmont; Burwell; Cherry county; Halsey; Lincoln; Norfolk; Scotia; Thedford; Turkey creek in Holt county.

10. Bromus inermis Leyss.

Commonly cultivated and often escapes.

Smooth Brome Grass.

Callaway.

11. Bromus tectorum L.

Introduced and becoming a common weed in vārious places in the state. Boelus; Brunswick; Lincoln; Minden; Sargent; Wisner.

2. Festuca. 145.

Empty scales firm, the second 3-5-nerved.

Leaves narrow, usually involute, less than 4 mm. wide.

Spikelets 6-13-flowered; annuals; stamens 2.

Spikelets 3-5-flowered; perennials; stamens 3.

2. F. ovina.

Leaves 4 mm. wide or more, flat.

Flowering scales over 5 mm. long; spikelets 5-9-flowered.

Flowering scales 4 mm., or less, long; spikelets 3-5 flowered.

Empty scales thin, more or less scarious, second scale 1-nerved or

sometimes 3-nerved at the base.
Inflorescence open, its branches spreading.
Inflorescence narrow and spikelike.

5. F. scabrella.
6. F. confinis.

1. Festuca octoflora Walt.

In dry sandy soil all over the state. Alliance; Ashland; Box Butte county: Broken Bow; Callaway; Kearney; Halsey; Lincoln; Thedford; Valentine.

2. Festuca ovina L.

In prairies throughout the state. Box Butte county; Broken Bow; Lincoln; Thomas county; War Bonnet canyon.

3. Festuca elatior L. Tall or Meadow Fescue-grass. Sometimes escapes from cultivation. Atkinson; Grand Island; Valentine.

- 4. Festuca nutans Willd.

 In the eastern part of the state. Elmwood; Lincoln; Nebraska City; Fort Niobrara; Omaha; Nemaha; Ponca; Weeping Water.
- 5. Festuca scabrella Torr. Custer county.
- 6. Festuca confinis Vasey. Festuca watsoni Nash.

In the western part of the state. Crawford; Harrison.

3. Puccinellia, 145.

1. Puccinellia airoides (Nutt.) Wats, & Coult. In the western part of the state. In saline or alkaline soil. Belmont; Crawford; Cheyenne county; Lodge Pole; Long Pine.

4. Panicularia (Glyceria), 142,

Second empty scale about 1 mm. long.

Second empty scale 2 mm. long or more.

2. P. grandis.

1. Panicularia nervata (Willd.) Kuntze. Foul Meadow-grass. Common in wet places, especially in the western part of the state. Anselmo; Belmont; Emerson; Lincoln; Long Pine; Newark; Saunders county; Valentine.

2. Panicularia grandis (S. Wats.) Nash. Reed Meadow-grass. Frequent along streams in the sand-hill regions. Callaway; Emerson; Mullen; Thedford.

5. Scolochloa. 142.

1. Scolochloa festucacea (Willd.) Link. Prickly Fescue. In marshy places in the western part of the state.

6. Poa. 136.

Blue-grasses.

Annuals; rarely over 2 dm. tall. Perennials; usually taller.

1. P. annua. 8. P. compressa.

Stems flattened.
Stems not flattened, round or nearly so.

Flowering scales with cobweb-like hairs at the base. Flowering scales with all 5 nerves prominent.

Branches of the inflorescence erect or spreading, with many spikelets.

Branches of the inflorescence reflexed or drooping, with 2-4 spikelets.

Branches of the inflorescence few, single or in pairs.

Branches of the inflorescence many, in whorls of 4 to 7.

5. P. sylvestris.

Flowering scales with 3 prominent nerves, the intermediate faint or obsolete.

Branches of the inflorescence bearing spikelets above the 2. P. nemoralis. middle.

Branches of the inflorescence bearing spikelets only at the 6. P. alsodes.

Flowering scales without cobweb-like hairs at the base. Spikelets decidedly flattened; flowering scales acute.

7. P. pseudopratensis. Spikelets but slightly flattened; flowering scales rounded at the apex.

9. P. confusa. Flowering scales scabrous all over. Flowering scales scabrous above; strigose on the lower por-

Flowering scales ovate, not longer than the empty scales. 10. P. arida.

Flowering scales oblong, longer than the empty scales. 11. P. buckleyana.

Low Spear-grass.

1. Poa annua L. Reported from Lincoln.

Spear-grass. 2. Poa nemoralis L. In the western part of the state. Belmont; Johnstown.

Kentucky Blue-grass. 3. Poa pratensis L. Commonly cultivated and often escapes, especially in the eastern part of the state. Ashland; Halsey; Nemaha; Thedford; Valentine.

4. Poa reflexa V. & S. Norfolk.

5. Poa sylvestris A. Gray. Long Pine.

6. Poa alsodes A. Gray.

In woods in the northwestern part of the state. War Bonnet canyon.

7. Poa pseudopratensis Scribn. & Rydb.

In the western part of the state. Deuel county; Thedford.

Canada Blue-grass. 8. Poa compressa L. Over most of the state but not common. Bassett; Chadron; Kennedy; Lincoln: Sheridan county.

9. Poa confusa Rydb. Nebraska, according to Rydberg's Flora of Colorado.

10. Poa arida Vasey.

In dry prairies over most of the state. Belmont; Chadron; Crawford; Culbertson; Hardy; Harvard; Lincoln; Minden; Thedford.

11. Poa buckleyana Nash. Belmont: Chadron: Crawford.

7. Dactylis. 136.

Orchard-grass. 1. Dactylis glomerata L. Sometimes escapes from cultivation. Lincoln; Minden; Valentine.

8. Distichlis. 135.

Alkali-grass. 1. Distichlis spicata (L.) Green. In alkaline and saline soil, common throughout the state. Callaway;

Curtis; Grand Island; Hardy; Kennedy; Lincoln; Minden; North Platte; Sioux county; Whitman.

9. Korycarpus (Diarrhena). 134.

1. Korvcarpus arundinaceus Zea.

In deep woods in the southeastern part of the state. Weeping Water.

10. Melica. 133.

Culms over 8 dm. high, sheaths glabrous. Culms less than 8 dm. high, sheaths scabrous.

1. M. nitens. 2. M. porteri. Melic-grass.

1. Melica nitens Nutt.

Weeping Water.

2. Melica porteri Scribn. Nebraska, according to Rydberg's Flora of Colorado.

11. Catabrosa. 133.

1. Catabrosa aquatica (L.) Beauv. Water-grass. In water or wet places mostly in the western part of the state. Cherry county; Dismal River; Long Pine; Sidney; Thedford.

12. Koeleria. 132.

1. Koeleria cristata (L.) Pers. Prairie June-grass. Common in prairies all over the state. Belmont; Broken Bow; Halsey; Hastings; Lincoln; Minden; Ponca; Saunders county; Sioux county: Valentine.

13. Sphenopholis (Eatonia). 132.

Second empty scales much wider than the flowering scales, rounded or truncate at the apex. 1. S. obtusata. Second empty scale not much wider than the flowering scales, obtuse 2. S. pallens. or acute.

1. Sphenopholis obtusata (Michx.) Scribn.

Common on prairies throughout the state. Belmont; Broken Bow; Crawford; Cherry county; Halsey; Hat Creek basin; Kearney; Lincoln; Long Pine; Mullen; Plummer Ford; Thedford; Valley.

2. Sphenopholis pallens (Spreng.) Scribn. Wooded bluffs, mostly in the eastern part of the state. Belmont; Fort Niobrara; Nemaha; Valentine; Valley of the Bow in Cedar county.

14. Eragrostis. 129.

Stems not creeping.

Annuals.

Spikelets 2-5-flowered, 2-3 mm. long. Spikelets 5-many-flowered, 3-16 mm, wide.

Spikelets about 1 mm. wide.

Spikelets over 1 mm. wide.

Spikelets 1.5 mm. wide. Spikelets 2.5 mm. or wider.

Perennials.

Flowering scales less than 2 mm. long. Flowering scales less than 2 mm. long.

5. E. pectinacea. Flowering scales, at least the lower, over 2 mm. long.

6. E. trichodes.

1. E. capillaris.

2. E. pilosa.

3. E. purshii.-4. E. major.

Stems creeping.

Flowering scales 2 mm. long, glabrous. Flowering scales 3-4 mm. long, pubescent.

7. E. hypnoides. 8. E. weigeltiana.

Reed.

1. Eragrostis capillaris (L.) Nees.

In the southeastern part of the state. Weeping Water.

Slender Meadow-grass. 2. Eragrostis pilosa (L.) Beauv. A common weed in the eastern part of the state. Lincoln.

3. Eragrostis purshii Schrad.

Common in waste places, especially in the eastern half of the state. Broken Bow; Dukeville; Minden; Mullen; Plainview; Rushville; Weeping Water.

Stink-grass. 4. Eragrostis major Host. A common weed all over the state. Brown county; Callaway; Culbertson; Halsey; Hooker county; Kearney; Mullen; Niobrara; Talmage; Thomas county.

Couch-grass. 5. Eragrostis pectinacea (Michx.) Steud. Common in waste places except in the extreme western part of the state. Ainsworth; Calloway; Chelsea; Halsey; Lincoln; Long Pine; Minden; Republican valley; Thomas county.

Blowout-grass. 6. Eragrostis trichodes (Nutt.) Nash. Common in sandy places, often found in "blowouts". Dismal river; Franklin; Howard county; Keyapaha county; Plummer Ford; Thedford; Valentine.

7. Eragrostis hypnoides (Lam.) B. S. P. Creeping Eragrostis. Wet places, mostly along streams in the eastern part of the state. Franklin; Glen Rock; Guide Rock; Lincoln; Neligh; Norfolk; Wahoo.

8. Eragrostis weigeltiana (Reichenb.) Bush. Nebraska, according to Britton's Manual.

15. Diplachne. 128.

1. Diplachne acuminata Nash. Wet soil, frequent on sand-bars. Bassett; Callaway; Kearney; Minden; Niobrara river; Thedford.

16. Redfieldia. 128.

1. Redfieldia flexuosa (Thurb.) Vasey. Blowout-grass. A common grass of the sand-hill regions. Antelope county; Box Butte county; Dismal river; Keyapaha county; Minden; Mullen; Thomas county; Valentine.

17. Triplasis, 127.

1. Triplasis purpurea (Walt.) Chapman. Sand-grass. In ravines in the sand-hills. Long Pine; Minden; Plummer Ford; Halsey; Rock county; Valentine.

18. Tridens (Tricuspis). 126.

False Red-top. 1. Tridens flavus (L.) Hitch. In the eastern part of the state. Bordeaux; Chadron; Crawford; Mullen; Richardson county; Red Cloud; Riverton; St. Paul.

19. Phragmites. 125.

1. Phragmites phragmites (L.) Karst. Phragmites communis Trin. In wet places and in shallow water throughout the state. Albright: Alliance; Halsey; Lincoln; Newark; Niobrara; North Platte; Plummer Ford; Valentine; Whitman.

20. Munroa, 125.

1. Munroa squarrosa (Nutt.) Torr. False Buffalo-grass. A common ruderal in sand-hills and shortgrass region. Belmont; Callaway; Crawford; Thedford; Valentine.

Tribe 2. HORDEÆ.

With 1 spikelet at each joint of the rachis.

Spikelets with their sides turned toward the rachis. 1. Agropyron. Spikelets with their edges turned toward the rachis. 2. Lolium. With 2 to several spikelets at each joint of the rachis.

Spikelets 2-many-flowered.

mentary and sterile.

Empty scales present forming an involucre around the cluster of spikelets.

Rachis of the spike not readily breaking into joints, empty scales awnless or straight awned.

3. Elymus. Rachis readily breaking into joints, empty scales with long

bent awns.

Empty scales wanting or rudimentary.

5. Hystrix.

Spikelets with but 1 fertile flower, lateral spikelets often rudi-

1. Agropyron, 153.

No horizontal rootstocks or stolons: stems tufted.

Awns erect or none; spikelets nearly terete, approximate on the axis.

Awns usually as long as the scales; spikes nodding, about 5 mm. wide.

1. A. caninum.

Awns short or none.

Spikes slender and lax, 7-20 cm. long, green. 2. A. tenerum. Spikes stout and dense, 3-8 cm. long, usually purplish.

Awns spreading, spikelets flattened, remote on the rachis, empty scales awnless.

3. A. biflorum.
4. A. vaseyi.

With horizontal rootstocks or stolons.

Spikelets spreading, much flattened, 7-13-flowered. 5. A. smithii. Spikelets erect, slightly if at all flattened.

Flowering scales densely pubescent, spikelets 5-9-flowered.

Flowering scales glabrous, 3-7-flowered.

6. A. dasystachyum.

Under surface of leaves smooth, empty scales smooth.

7. A. repens. Under surface of leaves rough, empty scales hispidulous.

8. A. pseudorepens.

6. Hordeum.

- 1. Agropyron caninum (L.) R. & S. Awned Wheat-grass. In the western part of the state. Lincoln; Newark; O'Neill; Thedford; Valentine; Whitman.
- 2. Agropyron tenerum Vasey.

 Common in the western part of the state. Belmont; Crawford; Dismal river: Hat Creek basin; Kearney; Halsey; Newark; Newport; North Platte; Valentine.

- 3. Agropyron biflorum (Brignoli) R. & S. Purple Wheat-grass. In the foot-hills in the western part of the state. Box Butte county.
- 4. Agropyron vaseyi S. & S. In the western part of the state. Chadron; Fort Robinson.
- Western Wheat-grass. 5. Agropyron smithii Rydb. Common in prairies and meadows all over the state. Alliance; Bassett; Chadron; Halsey; Kearney; Lincoln; Minden; Neligh; Plummer Ford; Red Cloud; Thedford.
- 6. Agropyron dasystachyum (Hook.) Vasey. In the western part of the state. Chadron; Glen.
- Couch or Quack Grass. 7. Agropyron repens (L.) Beauv. In the northeastern part of the state. A specimen from Newcastle seems to belong here.
- False Couch Grass. 8. Agropyron pseudorepens Scribn. & Sm. In moist soil and meadows throughout the state. Anselmo; Belmont; Callaway; Kearney; Minden; Thedford; Valley county.

2. Lolium, 152.

Empty scale shorter than the 8-20-flowered spikelet.

Flowering scales 5-6 mm. long, awnless.

1. L. Flowering scales 7-8 mm. long, at least the upper awned. 1. L. perenne.

2. L. italicum.

Empty scales longer than the 5-7-flowered spikelets.

3. L. temulentum.

- 1. Lolium perenne L. Ray-grass. Introduced in various places but not common. Fort Robinson, Lincoln: Valentine.
- 2. Lolium italicum A. Br. Lolium multiflorum Lam.

Italian Ray-grass.

Lincoln.

3. Lolium temulentum L. Introduced but not common. Bearded Darnel.

3. Elymus. 156.

Wild Rye-grasses

Flowering scales awned, awn half as long as scale or more.

Spikelets spreading; spikes mostly stout. Empty scales linear-lanceolate to linear.

Empty scales short awned.

1. E. jejunus. Spike long exserted. Spike enclosed in the broad upper sheath. 2. E. virginicus. Empty scales usually long awned, or flowering scales hirsute.

3. E. canadensis.

Empty scales awl-shaped, very narrow.

4. E. striatus. Spikelets hirsute. 5. E. arkansanus. Spikelets glabrous or nearly so.

Spikelets appressed, spikes narrow, slender.
Flowering scales hispid.
Flowering scales glabrous.

6. E. vulpinus.

Spikelets few-flowered; awns of the flowering scales about as 7. E. macounii. long as the scale.

Spikelets 3-6-flowered; awns of the flowering scales often twice as long as the scales.

8. E. glaucus.

Flowering scales awnless or very short awned.

Empty scales awl-shaped, spike 1-4 dm. long. 9. E. condensatus. Empty scales broader, spikes not much over 1 dm. long.

10. E. curvatus.

1. Elymus jejunus (Ramaley) Rydb. Rare. Mullen.

2. Elymus virginicus L. Wild Rye. Mostly along streams in moist soil. Belmont; Callaway; Crete, Halsey; Lincoln; Red Cloud.

3. Elymus canadensis L. Common Wild Rye. Common all over the state. Variable, and several forms are considered as distinct species by most recent authors. Forms with large thick spikes have been called E. robustus, forms with very pubescent glumes E. hirsutiglumis, and forms with smooth glumes E. brachystachys. Anselmo; Aten; Belmont; Broken Bow; Callaway; Halsey; Hardy; Hat Creek; Kearney; Lincoln; Minden; Merriman; Mullen; Nemaha; Red Cloud.

4. Elymus striatus Willd. Slender Wild Rye. Common over must of the state. Belmont; Callaway; Franklin; Long Pine: Nemaha.

5. Elymus arkansanus Scribn. and Ball.

Sometimes considered a variety of the last. Red Cloud; Stamford; Weeping Water.

6. Elymus vulpinus Rydb.

Bottom lands in the western part of the state. Chadron; Whitman.

7. Elymus macounii Vasey.

In prairies, not common. Cass county; Beatrice; Fort Robinson; O'Neill; Red Cloud.

8. Elymus glaucus Buckl.

In moist soil. Culbertson; Lincoln; Mullen; Newcastle.

9. Elymus condensatus Presl. Giant Rye-grass. In wet saline soil. Glen; Nemaha; Newark; Valley county.

10. Elymus curvatus Piper. In wet soil near Halsey.

4. Sitanion. 155.

1. Sitanion elymoides Raf.

In dry soil in the western part of the state. Chadron; Scotts Bluff county; Sioux county.

5. Hystrix. 158.

1. Hystrix hystrix (L.) Millsp. Hystrix patula Moench.

Bottle-brush Grass.

In the eastern part of the state, not common. Cass county; Nehawka; Northeast Nebraska; Wahoo; Weeping Water.

6. Hordeum, 154.

Empty scales awnlike, 2-6 cm. long. Empty scales 2 cm. or less long.

1. H. jubatum.
2. H. pusillum.

1. Hordeum jubatum L. Squirrel-tail Grass. A common weed all over the state. Feeding hay containing large

amounts of this grass may cause serious injury to stock due to mechanical injury from awns. Alliance; Aten; Bassett; Chadron; Halsey; Hardy; Kearney; Kennedy; Lincoln; Minden; Natick; Sioux county; Thedford.

Little Barley. 2. Hordeum pusillum Nutt.

Common throughout the state. Lincoln; Thedford.

Tribe 3. CHLORIDEÆ.

1. Eleusine. Spikelets with several flowers. Spikelets with one or rarely two perfect flowers.

Flowers perfect, spikes all alike.

Flowering scales 5 mm. or more long.

Tall marsh grasses; flowering scales not 3-toothed. 2. Spartina. Low grasses of dry prairies; flowering scales 3-toothed.

Spikes 1-4, usually over 15 mm. long.

4. Bouteloua. Spikes numerous, 12 or more, less than 15 mm. long. 5. Atheropogon.

Flowering scales 3 mm. long or less. Hydrophytes; spikelets as broad as long. 3. Beckmannia. Xerophytes with narrow, almost filiform spikes. 6. Schedonnardus.

Flowers diœcious; pistillate spikes very different from the stami-7. Bulbilis. nate.

1. Eleusine. 124.

1. Eleusine indica (L.) Gaertn. Introduced but rare. Brunswick; Lincoln; Red Cloud. Yard-grass.

2. Spartina. 120.

Spikelets over 10 mm. long; spikes over 5 cm. long. 1. S. cynosuroides. Spikelets less than 10 mm. long; spikes less than 5 cm. long.

2. S. gracilis. Slough-grass. 1. Spartina cynosuroides (L.) Willd.

In wet places throughout the state, but most common in the eastern-part. Cherry county; Halsey; Laurel; Lincoln; Mullen; Niobrara river; Saunders county; Valentine; Whitman. Little Cord-grass.

In saline marshes in the western part of the state. Crawford; Cheyenne county; Haigler; Sheridan; Simeon.

3. Beckmannia. 123.

1. Beckmannia erucæformis (L.) Host. Western Slough-grass. In wet places in the western part of the state. Anselmo; Bordeaux; Kennedy; Merriman; Whitman.

4. Bouteloua, 123."

1. B. hirsuta. Rachilla of the rudimentary flower glabrous. Rachilla of the rudimentary flower with a tuft of long hair at its 2. B. oligostachya. Black Grama-grass.

1. Bouteloua hirsuta Lag. In dry prairies over most of the state. Belmont; Gage county; Halsey; Lincoln; Mullen; Pishelville; Valentine.

2. Bouteloua oligostachya (Nutt.) Torr. Blue Grama-grass. Common on dry prairies throughout the state. Callaway; Centrai City; Cherry county; Halsey; Hardy; Hat Creek basin; Mullen; Pishelville; Plummer Ford; Valentine.

5. Atheropogon. 123.

71. Atheropogon curtipendulus (Michx.) Fourn. Prairie Oats. Common all over the state. Bazile creek; Bellevue; Belmont; Franklin; Hardy; Lincoln; Louisville; Plummer Ford; Red Cloud.

6. Schedonnardus, 122.

1. Schedonnardus paniculatus (Nutt.) Trelease. Wild Crab-grass. Common in dry places throughout the state. Beatrice; Brunswick; Cushman; Grand Rapids; Halsey; Kearney; Lincoln; Minden; Nebraska City; Thedford; Valentine.

7. Bulbilis (Buchloe). 125.

1. Bulbilis dactyloides (Nutt.) Raf.

On dry prairies, mostly in the western part of the state. Alliance; Belmont; Box Butte county; Central City; Franklin; Halsey; Lincoln; Minden; Norway; Plainview; Thedford; Valentine.

Tribe 4. AVENEÆ.

Spikelets 2-6-flowered, the lower perfect. Spikelets 2-flowered, the lower staminate.

1. Avena.
2. Arrhenatherum.

1. Avena, 117.

Annual; empty scales as long as the spikelet.

Perennial; empty scales much shorter than the spikelet.

1. A. fatua.

2. A. striata.

Wild Oats.

A single plant was found near Lincoln. Common in South Dakota as a weed in grain fields and probably has been introduced in our state also. Differs from cultivated oats in the hairy flowering scales and the bent twisted awns.

2. Avena striata Michx.

In woods in the western part of the state. Long Pine; War Bonnet canyon.

2. Arrhenatherum. 118.

1. Arrhenatherum elatius (L.) Beauv. In fields and waste places. Lincoln; Minden.

Tall Oat-grass.

Tribe 5. PHALARIDEÆ.

1. Phalaris. 92.

Panicle elongated, over 5 cm. long. Panicle ovoid, less than 5 cm. long. P. arundinacea.
 P. canariensis.

1. Phalaris arundinacea L. Reed Canary-grass. In moist places, abundant in the eastern part of state and in the sand-hills. Ashland; Bassett; Lincoln; Plainview; Talmage; Whitman.

Canary-grass. 2. Phalaris canariensis L. Introduced, not common. Alliance; Lincoln; Minden; Valentine.

Tribe 6. PANICEÆ.

Spikelets without an involucre.

Spikelets not in one-sided spikes.

Spikelets in one-sided spikes.
Empty scales awned or awn-pointed.

Empty scales not awned.

Spikelets not much longer than wide.
Spikelets about twice as long as wide.

3. Paspalum.
4. Syntherisma.

Spikelets with an involucre, i. e. accompanied by bristles or enclosed

in a spiny bur. Involucre of bristles. Involucre of valves forming a spiny bur. 1. Panicum.

2. Echinochloa.

5. Chætochloa. 6. Cenchrus.

1. Panicum. 78.

Plants annual.

First empty scale not over 1/4 the length of the spikelet, truncate 1. P. dichotomislorum. or triangular tipped. First empty scale at least 1/3 the length of the spikelet, acute or

acuminate.

Panicle narrow, usually less than half as long as broad. 2. P. flexile.

Panicle as broad as long. Spikelets usually less than 2.5 mm. long.

3. P. capillare.
Spikelets usually over 2.5 mm. long.

4. P. barbipulvinatum.

Plants perennial.

Basal leaves similar to those of the culm; not forming a winter rosette; first empty scale % as long as spikelet. 5. P. virgatum.

Basal leaves usually distinctly different from those of the culm, forming a winter rosette; first empty scale not more than ½ the length of the spikelet.

Blades elongated, not over 5 mm. wide, 20 times as long as wide; autumnal form branching from base only.

Spikelets usually over 3.2 mm. long, pointed.

6. P. depauperatum. Spikelets usually less than 3.2 mm. long, blunt.

Spikelets from 2.7 to 3.2 mm. long. 7. P. perlongum. Spikelets from 2.2 to 2.7 mm. long. 8. P. linearifolium. Blades not elongated, (or if so over 5 mm. wide and autumnal form not branched from the base).

Spikelets neither turgid, blunt nor strongly nerved.

Ligule of conspicuous hairs, usually 3-5 mm. long.

Culms variously pubescent, if pilose the hairs not long

and horizontally spreading. Autumnal form erect or leaning, never forming a mat. Blades stiff, erect.

Blades lax, spreading.

9a. P. huachucæ silvicola.

Autumnal form branching from the middle nodes, forming widely spreading mats. (See also No. 9a.) 10. P. tennesseense. · Culms conspicuously pilose with long horizontally spreading hairs. 11. P. præcocius. Ligule obsolete or nearly so. 15. P. latifolium.

Spikelets turgid, blunt, strongly nerved. Spikelets not over 3 mm. long.

12. P. wilcoxianum. Spikelets over 3 mm. long.

Panicle about as wide as long; spikelets less than 3.5 mm. long; first empty scale 1/3 as long as the spikelet.

13. P. scribnerianum. Panicle narrow; spikelets over 3.5 mm. long; first empty scale ½ as long as spikelet. 14. P. liebergii.

scale ½ as long as spikelet. 14. P. liebergii. (Key abridged from "North American Species of Panicum", by Hitchcock and Chase.)

1. Panicum dichotomiflorum Michx.

Panicum proliferum Lam.

In the southeastern part of the state. Lincoln; Talmage.

- 2. Panicum flexile (Gattinger) Scribn. (South Dakota.)
- 3. Panicum capillare L. Witch-grass. A common weed over most of the state. Ewing; Halsey; Lincoln; Stanton county; Valentine.

4. Panicum barbipulvinatum Nash.

A common weed all over the state. Belmont; Box Butte county; Central City; Dismal river; Grant county; Hooker county; Niobrara; North Platte; Simeon; Whitman.

5. Panicum virgatum L. Switch-grass. Common on the prairies over most of the state. Broken Bow: Crawford; Franklin; Hardy; Lincoln; Mullen; North Platte; Pishelville; Talmage; Thedford; Valentine.

6. Panicum depauperatum Muhl.

Atkinson; Ewing.

7. Panicum perlongum Nash.

Ewing.

8. Panicum linearifolium Scribn. (Kansas and Minnesota.)

9. Panicum huachucæ Ashe.

Ewing; Loup City; Thomas county; Valentine.

9a. Panicum huachucæ var. silvicola Hitch. & Chase. Common over most of the state. Ewing; Grand Island; Kearney; Natick; Pishelville; Thedford.

10. Panicum tennesseense Ashe.

Minden.

11. Panicum præcocius Hitch. & Chase.

Broken Bow; Grand Island.

12. Panicum wilcoxianum Vasey.

Common in the sand-hills. Callaway; Hastings; Fort Niobrara; Lincoln; Minden; Stanton; Thedford; Valentine; Valley county; Weigand.

13. Panicum scribnerianum Nash.

All over the state. Belmont; Broken Bow; Ewing; Hardy; Lincoln; Mullen; Thedford; Valentine; Weeping Water.

14. Panicum liebergii (Vasey) Scribn.

Ponca; Stanton.

15. Panicum latifolium L. (Iowa and Kansas.)

2. Echinochloa. 78.

1. Echinochloa crus-galli (L.) Beauv. Barnyard-grass. A common weed in moist soil. Atkinson; Benkelman; Brunswick; Chelsea; Ewing; Mullen; Royal; Valentine; Whitman.

3. Paspalum. 72.

1. Paspalum stramineum Nash.

Common in dry sandy soil throughout the state. Bellevue; Holt county; Kennedy; Minden; Mullen; Oreopolis; Red Cloud; Thedford; Verdigre.

4. Syntherisma (Digitaria). 76.

Pedicels terete or nearly so, spikelets less than 2.5 mm. long.

1. S. linearis.

Pedicels three-angled, spikelets 2.5 mm. long or more.

2. S. sanguinalis.

1. Syntherisma linearis (Krock.) Nash.

Long Pine.

2. Syntherisma sanguinalis (L.) Dulac. Crab-grass. A common weed in the eastern part of the state, less common westward. Custer county; Guide Rock; Hardy; Lincoln; Minden; Valentine.

5. Chætochloa (Setaria). 89.

Bristles 5-16 at the base of each spikelet, tawny-orange.

1. C. glauca.
Bristles 1-4 at the base of each spikelet.

Bristles upwardly barbed.

Spikelets 2 mm. long, bristles green.

Spikelets 2.5 mm. long, bristles purple.

3. C. italica.

Bristles downwardly barbed. Spikes adhere to clothing.

4. C. verticillata. Yellow Fox-tail.

1. Chætochloa glauca (L.) Scribn. Yellow Fox-tail. Common as a weed all over the state, but most abundant in the eastern part. Franklin; Lincoln; Talmage.

2. Chetochloa viridis (L.) Scribn. Green Fox-tail. A common weed all over the state. Franklin; Greenwood; Halsey; Hardy; Lincoln; Minden; Mullen; Schuyler; Talmage; Valentine; Weigand.

3. Chætochloa italica (L.) Scribn.

Millet.

Cultivated for hay and often escapes. Anselmo; Lincoln.

4. Chætochloa verticillata (L.) Scribn. Bristly Fox-tail. Found in several localities in the eastern part of the state, but not common. Lincoln; Newark; Minden; Omaha; Orleans; Valentine; Weeping Water.

6. Cenchrus. 90.

1. Cenchrus carolinianus Walt.

A common and troublesome weed. Central City; Chelsea; Grand Island; Halsey; Lincoln; Mullen; Omaha; Talmage.

Tribe 7. AGROSTIDEÆ.

Flowering scales hyaline or membranous, awnless or dorsally awned, loosely enveloping the seed.

Empty scales awnless or nearly so.

Inflorescence an open panicle, or if spike-like the flowering scales 1-nerved.

Flowering scales with long hairs at the base.

Empty scales nearly equal; flowering scales dorsally awned.

2. Calamagrostis.

Empty scales very unequal; flowering scales awnless.

3. Calamovilfa.

Flowering scales not hairy at the base.

Palet 2-nerved; stamens 3.

Flowering scales shorter than the empty scales, and longer than the palet.

Flowering scales longer than the empty scales, and not longer than the palet.

Palet 1-nerved or the 2 nerves close together, stamen only 1.

Inflorescence spike-like.

Flowering scales awnless; empty scales short-awned. 6. Phleum. Flowering scales awned; empty scales usually awnless.

7. Alopecurus.

Empty scales with awns longer than the body of the scale.

8. Polypogon.

Flowering scales indurated, firmer than the empty scales, closely enveloping the seed, awned or awn-pointed at the tip.

Flowering scales with a deciduous awn; empty scales broad.

Flowering scales glabrous.

Flowering scales densely pubescent with long hairs.

10. Eriocoma.

Flowering scales with a permanent awn or the empty scales narrow.

Awn simple or wanting.

Awn not twisted, delicate or reduced to a mere point.

11. Muhlenbergia. 12. Stipa.

Awn twisted and bent at the base. Awn three-branched, the lateral branches often small.

13. Aristida.

1. Agrostis. 109.

Palet conspicuous, at least 1/3 as long as the flowering scale.

1. A. alba.

Palet minute or wanting.

Branches of the panicle spikelet-bearing to the base.

2. A. asperifolia.

Branches of the panicle naked below.

Stems weak, often decumbent. Stems erect.

3. A. perennans. 4. A. hyemalis.

1. Agrostis alba L. Red-top.
Cultivated for hay and pasture. Common in low prairies where it often drives out the native grasses. Anselmo; Dukeville; Halsey; Hat Creek basin; Kearney; Lincoln; Rushville; Talmage; Thedford; Wahoo.

2. Agrostis asperifolia Trin.

Northern Red-top.
In western part of the state. Belmont; Dismal river; Hat Creek basin; Long Pine; Mullen; Plummer Ford; War Bonnet canyon.

3. Agrostis perennans (Walt.) Tuckerm.

Agrostis schweinitzii Trin.

Cass county.

4. Agrostis hyemalis (Walt.) B. S. P. Hair-grass. In prairies over most of the state. The panicle is blown about as a tumble-weed. Atkinson; Belmont; Dismal river; Elmwood; Halsey; Kearney; Lincoln; Minden; St. James; Thedford.

2. Calamagrostis. 111.

Panicle open, the lower branches wide spreading. 1. C. canadensis. Panicle contracted, branches ascending.

Basal hairs about as long as the scale.

Basal hairs half as long as scale.

2. C. inexpansa.
3. C. neglecta.

1. Calamagrostis canadensis (Michx.) Beauv. Yellow-top. Prairies, not very common. Aten; Kearney; Ord; Platte river; Scotia; Whitman.

2. Calamagrostis inexpansa A. Gray.

Mullen; along Platte river in Kearney county; Thedford.

3. Calamagrostis neglecta (Ehrh.) Gaertn. Pony-grass. In prairies, most common westwards. Anselmo; Ashland; Atkinson; Hat Creek basin; Scotia; Sheridan county; Sioux county; Valley county.

3. Calamovilfa. 114.

1. Calamovilfa longifolia (Hook.) Hack. Long-leaved Reed-grass. Common in the sand-hill regions. Alliance; Antelope county; Banner county; Belmont; Culbertson; Dismal river; Franklin; Halsey; Mullen; Sioux county; Thomas county; Valentine; Verdigris creek.

4. Cinna. 108.

1. Cinna arundinacea L. Wood Reed-grass. In woods mostly in the eastern half of the state. Bellevue; Cherry county; Hitchcock; Long Pine; Lincoln; Riverton; Talmage; Wahoo; Weeping Water.

5. Sporobolus. 104.

Drop-seeds.

Panicle contracted, spike-like.

Spikelets 4-5 mm. long.

Panicle over 6 cm. long.

Panicle less than 6 cm. long.

2. S. vaginæflorus.

Spikelets not over 3 mm. long, panicle partly enclosed in the sheath.

3. S. neglectus.

Panicle open, not spike-like.
Spikelets over 4 mm. long, first scale subulate, often awn-pointed.
4. S. heterolepis.

Spikelets 2 mm. long or less.

Empty scales unequal, the first half as long as the second or

First scale half as long as the second, not scabrous keeled.

5. S. airoides.

First scale 1/3 as long as the second, scabrous keeled. 6. S. cryptandrus.

Empty scales about equal.

Rootstock present: leaves 2 mm. wide or more.

7. S. asperifolius.

Rootstock wanting: leaves less than 2 mm. wide.

8. S. confusus.

1. Sporobolus asper (Michx.) Kunth.

Throughout the state. Kennedy; Lincoln; Valentine.

2. Sporobolus vaginæflorus (Torr.) Wood. Common in waste places except in the extreme west. Atkinson; Bellevue; Carns; Hardy; Lancaster; Lincoln; Long Pine; Minden.

3. Sporobolus neglectus Nash.

Over most of the state. Callaway: Long Pine: Valentine.

4. Sporobolus heterolepis A. Gray.

In the eastern part of the state, not common. Anselmo; Atkinson; Ewing; Lincoln.

5. Sporobolus airoides Torr.

In prairies in the western part of the state. Alliance; Box Butte county; North Platte; Sheridan county.

6. Sporobolus cryptandrus (Torr.) A. Gray.

Common in sandy soil all over the state. Anselmo; Box Butte county; Brunswick; Cherry county; Culbertson; Republican City; Scotts Bluff county; Thedford; Valley county; Verdigris creek.

7. Sporobolus asperifolius Nees & Meyen.

In the western part of the state. Box Butte county; Hitchcock county; Kearney; Simeon; Rushville.

8. Sporobolus confusus Vasey.

Scotts Bluff county.

6. Phleum. 102.

1. Phleum pratense L. Timothy. Cultivated for hay and often escapes. Long Pine; Lincoln; Sioux county; Thedford; Valentine.

7. Alopecurus. 102.

1. Alopecurus aristulatus Michx. Water Fox-tail. Common in wet places throughout the state. Box Butte county; Deuel county; Halsey; Lincoln; Long Pine; Minden; Rushville; Scotts Bluff county; Thedford.

8. Polypogon, 107.

1. Polypogon monspeliensis (L.) Desf. In wet soil. Newark.

Beard-grass.

9. Oryzopsis. 97.

1. Oryzopsis micrantha (Trin. & Rupr.) Thurb. Mountain Rice. In the western part of the state. Belmont; Dismal river; Long Pine; Plummer Ford: Valentine.

10. Eriocoma. 98.

Indian Millet. 1. Eriocoma cuspidata Nutt. On dry plains and hillsides in the western part of the state. Belmont; Box Butte county; Chadron; Cheyenne county; Crawford; Mullen; Sioux county.

11. Muhlenbergia. 99.

Panicle narrow, spike-like; branches short, not spreading.

Flowering scales awnless or awn-pointed.
Empty scales longer than the flowering scales. 1. M. racemosa. Empty scales not longer than the flowering scales.

Empty scales about as long as the flowering scales. Stems much branched; rhizomes present. 2. M. 2. M. mexicana. Stems little branched; without rhizomes. 3. M. cuspid Empty scales about half as long as the flowering scales. 3. M. cuspidata.

4. M. richardsonis. Perennials, with scaly rootstocks. Annuals, without rootstocks.

Flowering scales with awns as long as the scales or longer.

Empty scales about as long as the flowering scales.

6. M. umbrosa.

Empty scales much shorter than the flowering scales. Empty scales about half as long as the flowering scales.

7. M. tenuiflora.

Empty scales about one-fourth as long as the flowering scales. 8. M. schreberi.

Panicle open, its branches long and spreading.

9. M. pungens.

Wild Timothy. 1. Muhlenbergia racemosa (Michx.) B. S. P. Common in wet soil over most of the state. Kearney; Lincoln; O'Neill; Thedford; Valentine. Belmont: Halsey;

2. Muhlenbergia mexicana (L.) Trin. Wood-grass: Common in meadows and along streams throughout the state. Dismal river; Halsey; Kennedy; Natick; Neligh; Red Cloud; Thedford; Valentine; Wahoo; Weeping Water.

3. Muhlenbergia cuspidata (Torr.) Rydb.

Sporobolus cuspidatus Wood. In dry soil over most of the state. Belmont; Cass county; Cherry county; Cheyenne county.

4. Muhlenbergia richardsonis (Trin.) Rydb. Sporobolus brevifolius Nash.

In the western part of the state. Cody; Kennedy; Lincoln; Minden.

5. Muhlenbergia simplex (Scribn.) Rydb.

Sporobolus simplex Scribn. In the western part of the state, according to Rydberg's Flora of Colorado.

6. Muhlenbergia umbrosa Scribn.

In woods along streams. Ewing; Orleans; Valentine.

7. Muhlenbergia tenuiflora (Willd.) B. S. P.

Grand Island; Red Cloud.

Nimble-will. 8. Muhlenbergia schreberi Gmel. In dry soil in the southeastern part of the state. Lincoln; Red Cloud; Valley county.

9. Muhlenbergia pungens Thurb.

In the sand-hills, frequently in "blowouts". Belmont; Dismal river; Haigler; Hat Creek basin; Minden; Mullen; Valentine.

12. Stipa. 96.

Awns less than 5 cm. long; empty scales less than 1 cm. long. 1. S. viridula.

Awns a dm. or more long; empty scales 2 cm. or more long.

Flowering scales 8 to 12 mm. long, awn slender, flexible. 2. S. comata.

3. S. spartea. Flowering scales 20 to 25 mm. long, awn stiff. Feathery Bunch-grass. 1. Stipa viridula Trin. In the western part of the state. Belmont; Burwell; Central City; Deuel county; Mullen; Valentine; Weigand.

2. Stipa comata Trin. & Rupr. Needle-grass, Western Spear-grass. Common in the western part of the state and in the sand-hills. Axtell; Belmont; Box Butte county; Broken Bow; Brunswick; Harrison, Halsey; Kearney county; Thedford; Valentine.

Porcupine-grass, Spear-grass. 3. Stipa spartea Trin. Common in prairies in the eastern part of the state. Crete; Cherry

county; Lincoln; Thedford; Weeping Water.

13. Aristida. 93.

Central awn 3.5 cm. long or more.

Awns distinct to the base, not articulated to the scale.

First scale much shorter than the second.

Second scale 1.5 cm. long, but little longer than the flowering 4. A. fendleriana. Second scale 2 cm. long, much longer than the flowering scale. 5. A. longiseta.

First scale as long as the second or nearly so. 6. A. oligantha. Awns united at the base and articulated to the scale.

8. A. desmantha.

Central awn not over 3 cm. long.

Lateral awns much shorter than the central one.

2. A. basiramea. Spikelets 10-15 mm. long.

Spikelets about 6 mm. long.

Central awn 1 cm. or more long, the lateral 2-6 mm. long. 7. A. gracilis. Central awn 3-6 mm. long, the lateral reduced to erect teeth. 1. A. dichotoma.

Lateral awns nearly as long as the central one. 3. A. fasciculata. Poverty-grass.

1. Aristida dichotoma Michx. Nebraska, according to Britton's Manual.

2. Aristida basiramea Engelm. Tufted Triple-awn. Common in the sand-hill region. Atkinson; Broken Bow; Exeter; Long Pine; Thedford; Valentine.

3. Aristida fasciculata Torr. Dog-town Grass. In dry soil mostly in the western part of the state. Lavaca; Lincoln; Long Pine; Thedford.

4. Aristida fendleriana Steud.

In dry sandy soil. Crawford: Lavaca: Valentine.

5. Aristida longiseta Steud.

In dry sandy soil. Callaway; Long Pine; Wood Lake.

6. Aristida oligantha Michx. Prairie Triple-awn. Common over most of the state. Ainsworth; Endicott; Ewing; Franklin; Grand Rapids; Lincoln; Long Pine; Minden.

7. Aristida gracilis Ell.

Slender Beard-grass.
In dry soil in the western part of the state. Atkinson; Arabia;
Bassett: Valentine.

8. Aristida desmantha Trin. & Rupr.

Minden.

Tribe 8. ORYZEÆ.

Spikelets alike; flowers all perfect; scales awnless.

1. Homalocenchrus. Spikelets not alike; flowers monœcious; scales of the pistillate spikelets long awned.

2. Zizania.

1. Homalocenchrus (Leersia). 91.

Spikelets 4-5 mm. long, 1.5 mm. wide
Spikelets 2.5-3 mm. long, 1 mm. wide.

1. H. oryzoides.
2. H. virginicus.

1. Homalocenchrus oryzoides (L.) Poll. Rice Cut-grass. In marshy places and along streams throughout the state. Bellevue; Coon Creek; Grand Island; Halsey; Lincoln; Lodge Pole creek; North Platte; Royal; Talmage; Valentine.

2. Homalocenchrus virginicus (Willd.) Britton.

In similar places as the last, not reaching the western part of the state. Bellevue; Cass county; Culbertson; Lincoln; Meadville; Weeping Water; Whitman.

1. Zizania. 91.

1. Zizania aquatica L. Indian Rice. In marshes and along streams over most of the state. Atkinson; Bone creek; Furnas county; Lincoln; Newark; Simeon; Stanton.

Tribe 9. ANDROPOGONEÆ.

Inflorescence composed of many-flowered spike-like racemes.

1. Andropogon.

Inflorescence composed of few-flowered racemes, arranged in open panicles.

2. Sorghastrum.

1. Andropogon (Schizachyrium). 68.

Racemes solitary.

1. A. scoparius.

Racemes 2 or more together.

Fourth scale with a long bent awn, twisted at the base.

Empty scales hispidulous all over, hairs on rachis internodes 2 mm. long.

2. A. furcatus.

Empty scales smooth except on the nerves, hairs on rachis internodes 3-4 mm. long.

3. A. chrysocomus. Fourth scale awnless or with a short, straight, untwisted awn.

Pedicels and rachis internodes with copious, stiff, marginal hairs.

4. A. hallii.

Pedicels and rachis internodes with scant, lax, marginal hairs.

5. A. paucipilus.

1. Andropogon scoparius Michx. Little Blue-stem. Common in the prairies all over the state. Anselmo; Deuel county; Dismal river; Grand Rapids; Halsey; Lincoln; North Platte; Republican City; Valentine.

2. Andropogon furcatus Muhl.

Common in prairies throughout the state.

Beaver creek in Holt

county; Franklin; Gage county; Halsey; Lincoln; Mullen; Thedford; Valentine: Wahoo; Whitman.

3. Andropogon chrysocomus Nash.

Halsey.

- Sand-hill Blue-stem. 4. Andropogon hallii Hack. Common on high prairies in the central and western parts of the state. Antelope county; Banner county; Box Butte county; Chelsea; Garden county; Haigler; Lawrence Fork; Long Pine; Plummer Ford; Thedford: Valentine.
- 5. Andropogon paucipilus Nash. Nebraska, according to Britton's Manual.

2. Sorghastrum. 71.

Indian Grass. 1. Sorghastrum avenaceum (Michx.) Nash. Sorghastrum nutans (L.) Nash. Common on the prairies. Ayr; Carns; Dismal river; Deuel county; Hardy; Halsey; Lincoln; North Platte; Thedford; Valentine.

Tribe 10. MAYDEÆ.

1. Tripsacum, 67.

Gama-grass. 1. Tripsacum dactyloides L. In low wet places in the southeastern part of the state. Nemaha; Richardson county; Weeping Water.

HYDRALES.

1. HYDROCHARITACEÆ.

1. Philotria (Elodea). 60.

Elodea or Water-weed. 1. Philotria canadensis (Michx.) Britton. In ponds and streams, rare. Ewing; Neligh.

IRIDALES.

Stamens 6. Stamens 3. 1. Amaryllidaceæ. 2. Iridaceæ

1. AMARYLLIDACEÆ.

Amaryllis Family.

1. Hypoxis. 280.

Yellow Star-grass. 1. Hypoxis hirsuta (L.) Coville In low prairies in the eastern part of the state. Ashland; Inman; Lincoln: Newark: Otoe county; Plainview.

2. IRIDACEÆ. Iris Family.

Style-branches petal-like, opposite the stamens. 1. Iris. Style-branches not petal-like, alternate with the stamens.

Petals mottled, flowers 3-5 cm. broad.

Petals not mottled, flowers less than 3 cm. broad. 3. Sisyrinchium.

1. Iris. 282.

1. Iris versicolor L. Blue Flag. In low wet places in the eastern part of the state, not common. Ashland; Nebraska City.

2. Gemmingia. 284.

1. Gemmingia chinensis (L.) Kuntze. Blackberry Lily. Belamcanda chinensis (L.) DC.
Escaped from cultivation and spreading along roadsides near Bruns-

wick.

3. Sisyrinchium. 284.

Mostly over 20 cm. high; outer bract of the spathe united at the base; flowers deep blue.

1. S. angustifolium.

Mostly less than 20 cm. high; outer bract of the spathe not united at the base; flower light blue to white.

2. S. campestre.

1. Sisyrinchium angustifolium Miller. Blue-eyed Grass. In prairies over most of the state. Banner county; Central City; Lincoln; Pine Ridge; Thedford.

2. Sisyrinchium campestre Bicknell. Prairie Blue-eyed Grass. Common in prairies, blooms earlier than the last. Lincoln; Saline county.

ORCHIDALES.

1. ORCHIDACEÆ.

Orchid Family.

Holophytes with normal green leaves.

Fertile stamens 2, on the sides of the column; a large staminodium central over the column.

1. Cypripedium.

Fertile stamen one, central over the column; staminodia, if present

lateral

Flowers with a spur at least 2 mm. long.

Leaves all basal.
Leaves not all basal.
Flowers not spurred.

l basal.

t all basal.

spurred

spurred

Petals joined to the upper sepal.

Petals free from the sepals.

Saprophytes without green leaves; stems yellowish or brownish.

6. Corallorhiza.

1. Cypripedium. 290.

Lip yellow.

Lip white.

1. C. parviflorum.
2. C. candidum.

Velley, Ledy's glippor

1. Cypripedium parviflorum Salisb. Yellow Lady's-slipper. In southeastern Nebraska along the Missouri river. Peru; Plattsmouth; Richardson county.

2. Cypripedium candidum Willd. White Lady's-slipper. In lowlands in the eastern part of the state. Clearwater; Central City; Knox county; Lincoln; Long Pine; Newark; Richardson county; Scotia Junction; St. Paul.

2. Orchis. 292.

1. Orchis spectabilis L. Galeorchis spectabilis (L.) Rydb.

Wooded bluffs of the Missouri. Bellevue; Fremont island; Omaha; Peru: Plattsmouth.

3. Habenaria. 292-295.

Lip not fringed. 1. H. bracteata. Lip three-toothed; flowers green or greenish. 2. H. hyperborea. Lip entire; flowers white. 4. H. leucophæa! Lip fringed.

1. Habenaria bracteata (Willd.) R. Br. Cœloglossum bracteatum (Willd.) Parl.

Along shady banks in various parts of the state. Gordon; Lincoln; Peru; Sioux county.

2. Habenaria hyperborea (L.) R. Br.

Limnorchis hyperborea (L.) Rydb. In the western part of the state. Boelus; Chadron; Halsey; Sioux county; Valentine.

3. Habenaria leucophæa (Nutt.) Gray. Blephariglottis leucophæa (Nutt.) Rydb. In wet meadows over most of the state, common in wet valleys of the sand-hill region. Belmont; Cherry county; Crete; Fairbury; Kennedy; Lincoln; Plainview.

4. Ibidium (Spiranthes). 299.

Flowers apparently in a single rank, secund. 1. I. gracile. Flowers 3-ranked.

Sepals and petals forming a hood, callosities of lip small or want-2. I. strictum. Sepals separate, callosities nipple-shaped. 3. I. cernuum.

1. Ibidium gracile (Bigel.) House.

Franklin.

2. Ibidium strictum (Rydb.) House. Grand Island; Long Pine; Simeon.

3. Ibidium cernuum (L.) House. Common in wet meadows throughout the state. Ashland; Brown county; Cody; Long Pine canyon; Newark; Pine Ridge; Plainview; Sioux county; Thomas county.

5. Liparis. 303.

Twayblade.

Early Coral-root.

1. Liparis loeselii (L.) L. C. Richard. In wet soil. Thedford; Valentine.

6. Corallorhiza, 305.

Lip entire; whole plant yellow. Lip with 2 lateral lobes or teeth; plant brownish. 1. C. ochroleuca. 2. C. corallorhiza.

Spur very small; lip with small lobes, unspotted. Spur manifest; lip with prominent lobes, spotted. 3. C. maculata.

Yellow Coral-root. Corallorhiza ochroleuca Rvdb. Woods in western Nebraska.

2. Corallorhiza corallorhiza (L.) Karst. Shady woods in canyons in Sioux county.

3. Corallorhiza maculata Raf. Larger Coral-root.

Shady woods in the canyons of Sioux county.

CLASS DICOTYLEDONEAE.

The Dicots.

Sub-class THALAMIFLORÆ.

RANALES.

Land or marsh plants. Carpels several to many, only 1 in some species of Delphinium. 1. Ranunculaceæ. Herbs not climbing.

Leaves compound; fruits achenes. Leaves simple; fruits drupes. Shrubs or small trees.

Carpel single: 2-many-ovuled.

Aquatic herbs.

Leaves floating, peltate or with a deep sinus at the base. 4. Nymphæaceæ.

Leaves mostly submerged and dissected. Flowers peduncled, opposite the leaves. Flowers sessile, axillary.

1. Ranunculaceæ. 3. Menispermaceæ. 6. Anonaceæ, 2 Berberidaceæ.

1. Ranunculaceæ. 5. Ceratophyllaceæ.

3. Batrachium.

1 RANUNCULACEÆ.

Crowfoot Family.

Carpels one-ovuled, fruit an achene.

Petals usually present. Sepals spurred; leaves basal, linear; receptacle in fruit elon-1. Myosurus. gated, cylindrical. Sepals not spurred; receptacle in fruit spherical, conical or short

cylindrical. Petals white, aquatic herbs.

Petals yellow; land or marsh plants.
Achenes not ribbed; leaves various.
Achenes longitudinally ribbed; leaves cordate, crenate. 2. Ranunculus. 4. Halerpestes.

Petals wanting; sepals often petaloid.

Leaves mostly alternate or basal. Leaves all alternate, ternately compound; flowers diecious. 5. Thalictrum.

Leaves or bracts subtending the inflorescence opposite or whorled.

Styles short, not plumose in fruit.

Basal leaves not twice or thrice ternately compound. 8. Anemone.

Basal leaves twice or thrice ternately compound.

6. Syndesmon. 7. Pulsatilla. Styles elongated in fruit, plumose. 9. Clematis. Leaves all opposite.

Carpels with several ovules; fruit a follicle or berry. Petals inconspicuous or none; never spurred.

Leaves simple; fruit a follicle. 10. Caltha. Leaves ternately compound; flowers racemose; fruit a berry.

13. Actæa.

Petals present; some or all spurred.

Flowers regular; all the petals spurred, carpels 5.

Flowers irregular; one sepal spurred, carpels 3 or 1.

12. Delphinium.

1. Myosurus. 423.

1. Myosurus minimus L. Mouse-tail.

Locally abundant in wet soil in various places in the state. Alliance;
Fairmont; Lewellen; Lincoln; Merriman; Minden; Weeping Water.

2. Ranunculus. 423.

Crowfoots or Buttercups.

Aquatic plants, with dissected leaves or sometimes rooting in mud.

Petals much larger than the sepals.

Petals not much larger than the sepals.

1. R. delphinifolius.

Petals not much larger than the sepals.

2. R. purshii.

Terrestrial plants; leaves entire, lobed or divided; segments not capillary.

Basal leaves all lobed or divided.

Plant glabrous, stem hollow. Plants more or less pubescent.

Beak of achene strongly hooked.

4. R. recurvatus.

Beak of achene not hooked.

Beak short, less than half as long as the achene.

Flowers about 2 cm. broad.

Leaves 3-lobed, broader than long, the terminal lobe sessile.

5. R. acris.

Leaves 3-lobed, longer than broad, the terminal lobe stalked.

6. R. bulbosus.

3. R. sceleratus.

Flowers less than 1 cm. broad. 7. R. pennsylvanicus. Beak at least half as long as the achene.

Beak sword-shaped, nearly as long as the achene.

8. R. septentrionalis.
Beak slender, subulate, about half as long as the achene.
9. R. hispidus.

Basal leaves not all lobed or divided.
Plant pubescent, basal leaves not cordate.
Plant glabrous, basal leaves cordate.

10. R. ovalis.
11. R. abortivus.

- 1. Ranunculus delphinifolius Torr. Yellow Water-crowfoot. In shallow water over most of the state. Antelope county; Aten; Fremont; Gordon; Minden; Saltillo.
- 2. Ranunculus purshii Richards. In water near Whitman.
- 3. Ranunculus sceleratus L. Celery-leaved or Cursed Crowfoot. In edges of ponds, not common. Poisonous. Aten; Belmont; Lewellen; Mullen; Newark; Sidney; Whitman.
- 4. Ranunculus recurvatus Poir. By springs and streams in the southeastern part of the state. Nebraska City; Weeping Water.
- 5. Ranunculus acris L. Meadow Buttercup. In the southeastern part of the state. Lincoln; Peru.
- 6. Ranunculus bulbosus L. Macon.

- 7. Ranunculus pennsylvanicus L. Bristly Buttercup. In wet places over most of the state. Atkinson; Belmont; Cody's lakes; Dawes county; Mullen; Minden; Scotia.
- 8. Ranunculus septentrionalis Poir. In wet soil in the eastern part of the state. Emerson; Newark; Stella.
- 9. Ranunculus hispidus Michx. Kimball.

Ranunculus ovalis Raf.
 Ranunculus rhomboideus Goldie.
 In the sand-hill regions. Antelope county; Burwell, Callaway; Gordon; Long Pine.

11. Ranunculus abortivus L. Smooth-leaved Buttercup. Woods and thickets, mostly along streams, in the southeastern part of the state. Beatrice; Crete; Ewing; Ft. Niobrara; Long Pine; Lincoln; Pauline.

3. Batrachium. 428.

Leaves sessile, circinate, rigid when withdrawn from water.

1. B. circinatum.

Leaves petioled, not circinate, collapsing when withdrawn from water.

2. B. trichophyllum.

1. Batrachium circinatum (Sibth.) Rydb. Rare. Lodge Pole creek.

2. Batrachium trichophyllum (Chaix.) Bossch. White Water-crowfoot.
Ranunculus aquatilis var. capillaceus D. C.
Common in streams throughout the state. Anselmo; Cherry county;
Keyapaha county; Lincoln; Long Pine; Newark; Plainview.

4. Halerpestes (Oxygraphis). 430.

1. Halerpestes cymbalaria (Pursh) Greene.
Common, often forming patches of considerable size in wet meadows and marshes. Poisonous. Alliance; Aten; Bellevue; Broken Bow; Crawford; Deuel county; Kearney county; Newark; Plainview; Whitman.

5. Thalictrum. 430.

1. Thalictrum dasycarpum Fisch. & Lall. Meadow Rue. In low meadows and open woods along streams throughout the state. Belmont; Dismal river; Lincoln; Red Cloud; Scotia; St. James; Valentine.

6. Syndesmon. 420.

1. Syndesmon thalictroides (L.) Hoffmg. Rue-anemone.

Anemonella thalictroides (L.) Spach.
In woods in the eastern part of the state, rare. Riverton; Woodlawn.

7. Pulsatilla, 420.

1. Pulsatilla hirsutissima (Pursh) Britton. Pasque-flower. In dry prairies mostly in northern and western part of the state. Antelope county; Ft. Robinson; Kearney; Valentine; West Point.

8. Anemone. 418.

Wind-flowers.

Root tuberous; stem simple; one-flowered.

Achenes densely woolly, leaves ternately divided. 1. A. caroliniana. 6. A. quinquefolia. Achenes pubescent, basal leaves 5-parted. Root not tuberous, stem branched, 2 to several flowered. Involucral leaves with petioles 2 cm. or more long.

Beak of fruit 1 mm. long; heads of fruit cylindrical, 2-4 cm. 3. A. cylindrica. long. Beak of fruit 2 mm. long; heads of fruits oblong, 1-2.5 cm. long. 4. A. virginiana.

Involucral leaves sessile or short petioled. Flowers less than 2 cm. broad.

Flowers over 2 cm. broad.

2. A. hudsoniana. 5. A. canadensis.

1. Anemone caroliniana Walt.

(Including A. decapetala Ard.) Common in dry prairies. Atkinson; Crete; Fairbury; Holdrege; Lincoln; Minden; Red Cloud; Royal; Valentine.

2. Anemone hudsoniana Richards.

Anemone multifida Poir.

In the western part of the state. Belmont.

3. Anemone cylindrica A. Gray. Common in dry prairies throughout the state. Belmont; Broken Bow; Cass county; Cherry county; Denton; Kearney county; Thedford: Valentine: Wahoo.

4. Anemone virginiana L.

In woods in the southeastern part of the state. Weeping Water.

5. Anemone canadensis L. Common in low ground in the eastern part of the state. Emerson; Grand Island; Lincoln; Lowell; Neligh; Peru; Red Cloud; Stuart; Wahoo.

6. Anemone quinquefolia L. In the eastern part of the state. Greenwood.

9. Clematis. (Including Viorna.) 420.

Leaves, at least some of them, pinnate.

Climbing vines.

Flowers cymose-paniculate, small, mostly diecious.

Leaves 5 to 7-foliolate, glabrate. 1. C. ligusticifolia. Leaves mostly 3-foliolate, silky beneath. 2. C. missouriensis. Flowers solitary, large. 3. C. pitcheri.

Erect herbs, lower leaves sometimes entire. 5. C. scottii. 4. C. fremontii. Leaves all simple.

- 1. Clematis ligusticifolia Nutt. Western Virgin's-bower. Common in woods and thickets in the western part of the state. Banner county; Belmont; Deuel county; Ft. Robinson; Kimball county; Saunders county; Thomas county; Valentine.
- 2. Clematis missouriensis Rydb. Often included in C. virginiana. Neligh; Peru; Pishelville; Richardson county.

- 3. Clematis pitcheri Torr. & Gray.
 On wooded bluffs in the eastern part of the state. Otoe county.
- 4. Clematis fremontii S. Wats. On limestone bluffs. Red Cloud.
- 5. Clematis scottii. Porter. In dry soil. Sheridan county.

10. Caltha. 412.

1. Caltha palustris L.

Along streams and ditches. Norfolk; Pierce; Kennedy.

11. Aquilegia. 415.

1. Aquilegia canadensis L. Columbine. In woods in the eastern part of the state, especially along the Missouri. Belmont; Fremont; Lincoln; Nebraska City; Plattsmouth; Ponca.

12. Delphinium. 416.

Larkspurs.

Several species, perhaps all, are poisonous to cattle.

Spur over one cm. long.

Follicles erect.

Flowers white, sometimes tinged with blue.

Flowers blue.
Follicles in fruit widely spreading.

Spur less than one cm. long.

1. D. albescens.
2. D. nelsoni.
4. D. tricorne.

3. D. urceolatum.

1. Delphinium albescens Rydb. Prairie Larkspur.
Delphinium penardi Huth.

Delphinium penardi Huth.

Common in prairies throughout the state. Banner county; Cherry county; Fairbury; Lincoln; Lodge Pole; Norway; Ponca; Sheridan county.

2. Delphinium nelsoni Greene. Occurs in western Nebraska. Ft. Robinson; Glen.

3. Delphinium urceolatum Jacq.

Tall Larkspur.

Delphinium exaltatum Ait. In woods in the eastern part of the state. Bennet; Lincoln; Nebraska City; Saltillo; Talmage; Tecumseh; Weeping Water.

4. Delphinium tricorne Michx. In woods and meadows in the eastern part of the state. Elmwood; Nebraska City; Weeping Water.

13. Actæa. 414.

Berry spherical, 5-7 mm. long. Berry ellipsoid, 10-12 mm. long 1. A. arguta. 2. A. rubra.

1. Actæa arguta Nutt. In the northwestern part of the state. Squaw canyon.

2. Actæa rubra (Ait.) Willd. Red Baneberry
In the northwestern part of the state. Belmont; Hat Creek basin;
War Bonnet canyon.

2 BERBERIDACEÆ.

Barberry Family.

Shrubs. Leaves spiny. Herbs.

Flowers paniculate, greenish purple.
Flowers solitary, white; leaves peltate.

1. Berberis.

2. Caulophyllum.
3. Podophyllum.

1. Berberis. 432.

Leaves simple; berries scarlet. Leaves pinnate; berries blue or purple. 1. B. vulgaris.
2. B. aquifolium.

1. Berberis vulgaris L. Common Barberry. This plant is the alternate host of the stem rust of wheat, and the government is trying to eradicate it. In connection with this work it has been found that the plant has escaped and is growing wild in groves, especially under conifers in several places in the eastern part of the state. Ceresco; Hartington; Nebraska City; Norfolk; Prosser; Tecamah; Weeping Water.

2. Berberis aquifolium Pursh. Oregon Grapes. A xerophyte of the northwestern part of the state. Belmont; Harrison; Pine Ridge; Squaw Butte.

2. Caulophyllum. 433.

1. Caulophyllum thalictroides (L.) Michx. Rare in wooded ravines along the Missouri. Bellevue; Newcastle.

3. Podophyllum. 433.

1. Podophyllum peltatum L. May-apple. In woods, mostly along the Missouri River. Brownville; Nebraska City; Nemaha; Richardson county.

3. MENISPERMACEÆ.

Moonseed Family.

1. Menispermum. 434.

1. Menispermum canadense L. Moon-seed. Common in open woods and thickets in the eastern part of the state. Crete; Ewing; Fairbury; Fremont island; Grand Island; Lincoln; Peru; Ponca; Red Cloud; Washington.

4. NYMPHÆACEÆ.

Water-lily Family.

Leaves not peltate.

Flowers yellow, petals shorter than the stamens.

Flowers white, petals longer than the stamens.

Leaves peltate, carpels contained in pits in the enlarged receptacle.

3. Nelumbo.

1. Nymphæa. 406.

1. Nymphæa advena Soland. Yellow Pond-lily. Formerly found in ponds throughout the state, but has been de-

stroyed by cattle in most places. Cherry county; Grant county; Kennedy; south of Whitman.

2. Castalia, 407.

1. Castalia tuberosa (Paine) Greene White Water-lily. In ponds in the eastern part of the state, but rapidly disappearing, due to tramping by cattle. Nemaha county; Richardson county.

3. Nelumbo. 408.

Big Yellow Water-lily. 1. Nelumbo lutea (Willd.) Pers. In ponds along the Missouri and Platte rivers. Sharing the same fate as the last. Near Ames; Fremont; Nemaha.

5. CERATOPHYLLACEÆ.

1. Ceratophyllum. 408.

Hornwort. 1. Ceratophyllum demersum L. Common in streams, ponds and lakes. Callaway; Grant county; Newark.

6. ANONACEÆ.

1. Asimina, 410.

American Pawpaw. 1. Asimina triloba (L.) Dunal. Along the Missouri in the southeastern part of the state. Nebraska City; Nemaha; Peru; Richardson county; Talmage.

RHŒODALES. (PAPAVERALES.)

Flowers quite irregular, some of the petals spurred. 2. Fumariaceæ. Flowers regular or nearly so.

Juice milky, yellow or red, sepals falling off when the flowers

1. Papaveraceæ.

Juice not colored, sepals persistent.

Capsule 1-celled, stamens 6-many, not tetradynamous.

3. Capparidaceæ.

Capsule 2-celled, stamens usually 6, tetradynamous, rarely only 2. 4. Cruciferæ.

1. PAPAVERACEÆ.

Poppy Family.

Sap yellow; leaves spiny, not all basal. Sap red; leaves all basal, not spiny.

1. Argemone. 2. Sanguinaria.

1. Argemone. 439.

Prickly or Thistle Poppy. 1. Argemone intermedia Sweet. Common in the western part of the state. Alliance; Box Butte county; Deuel county; Long Pine; Niobrara; Oxford; Sheridan county; Thedford; Valentine.

2. Sanguinaria. 439.

Blood-root. 1. Sanguinaria canadensis L. Rare in woods along the Missouri river. Bellevue; Ponca.

2. FUMARIACEÆ.

Fumitory Family.

Both of the outer petals spurred. Only one of the outer petals spurred.

Bicuculla.
 Capnoides.

1. Bicuculla (Dicentra). 440.

Rootstock bulbous, without tubers. Rootstock bearing numerous small tubers. 1. B. cucullaria. 2. B. canadensis.

1. Bicuculla cucullaria (L.) Millsp. Dutchman's-breeches. In woods in the eastern part of the state, mostly along the Missouri. Lincoln; Peru; South Bend; Talmage; Tecumseh; Wahoo; Weeping Water.

2. Bicuculla canadensis (Goldie) Millsp. Nebraska, according to Britton and Brown.

2. Capnoides (Corydalis). 441.

Seeds smooth; pods spreading, terete.

1. C. montanum.
Seeds reticulated; pods large, 3-5 cm. long, 4-sided, curved upwards.
2. C. campestre.

1. Capnoides montanum (Engelm.) Britton. Squirrel-corn. Common in low prairies. Perhaps only a variety of C. aurea. Banner county; Fairbury; Ft. Robinson; Kimball county; Neligh; Omaha; Peru; Pine Ridge.

2. Capnoides campestre Britton.

Less common. Ft. Robinson; Lawrence Fork.

3. CAPPARIDACEÆ.

Caper Family.

Petals entire or merely notched at the tip. Stamens not more than six.

Seeds numerous.
Seeds few, 4-10 in each pod.
Stamens 8-many, unequal.
Petals laciniate, unequal.

1. Cleome.
3. Cleomella.
4. Polanisia.
2. Cristatella.

1. Cleome, 467.

Flowers pink or white, leaves trifoliolate. Flowers yellow; leaves mostly 5-foliolate.

1. C. serrulata. 2. C. lutea.

1. Cleome serrulata Pursh.

Common in most parts of the state, often a weed in pastures in the sand-hills. Belmont; Carns; Callaway; Lincoln; Long Pine; Mullen; Newark; Rock county; Thedford; Weeping Water.

2. Cleome lutea Hook.
Introduced from the west; rare. Lincoln; Weeping Water.

2. Cristatella. 468.

1. Cristatella jamesii T. & G. Common in the sand-hills, often in "blowouts." Benkelman; Kennedy; Long Pine; Minden; Natick; Red Cloud; Thedford; Turner; Valentine.

3. Cleomella. 468.

1. Cleomella angustifolia Torr. Common in the western part of the state. Camp Clark; Culbertson; Julesburg; Lodge Pole creek; North Platte.

4. Polanisia. 468.

Flowers 4-6 mm. long, style 2 mm. long.

1. P. graveolens. Flowers 8-12 mm. long, style 4-6 mm. long.

2. P. trachysperma.

1. Polanisia graveolens Raf. Clammy-weed. In dry sandy or gravelly places in the western part of the state. Atkinson; Belmont; Long Pine; Red Cloud; Valentine.

2. Polanisia trachysperma T. & G. Common in sand draws and other dry, sandy places. Anselmo, Benkelman; Belmont; Dawes county; Deuel county; Niobrara; Pine Ridge; Royal; Red Cloud; Thedford.

4. CRUCIFERÆ. (BRASSICACEÆ.)

Mustard Family.

Pods stipitate (raised on a stalk above the receptacle); anthers spirally twisted.

Stipes several con long: flowers vellow.

1. Stanleya.

Stipes several cm. long; flowers yellow.
Stipes 1 mm. long; flowers pink.

Pods not stipitate; anthers not twisted.

1. Stanleya.
2. Thelypodium.

A. Pods compressed or flattened contrary to the narrow partition.

Cells of pod 1-seeded; pods usually winged, notched at the apex.

3. Lepidium.

Cells of pods with 2 to many seeds. Flowers white, 1-2 mm. broad.

Pods winged; foliage in ours smooth.
Pods wingless; plant pubescent below.

Flowers yellow, 1 cm. or more broad, foliage stellate canescent.

4. Thlaspi.
14. Bursa.
12. Physaria.

B. Pods neither compressed nor flattened contrary to the partition.

a. Pods terete or tetragonal, not flattened.

Pods terete or tetragonal, not hattened.

Pods short, rarely more than twice as long as wide.

Petals entire.

Pubescence stellate, seeds flat.

13. Lesquerella.

Pubescence not stellate.

Leaves entire or toothed, the upper sessile clasping by
a sagittate base.

15. Camelina.

Leaves lobed or pinnatifid, not sagittate.

9. Roripa.

Petals deeply 2-cleft.

22. Berteroa.

Pods long, several times as long as wide.

Pods scarcely beaked, merely tipped by a short style or a sessile stigma.

Pods terete or nearly so.

Seeds in 2 rows in each cell of the pod.

Valves of the pod nerveless.

Valves of the pod 1-nerved.

9. Roripa.
17. Sophia.

Seeds in one row in each cell of the pod.

Pubescence of simple hairs, lower leaves runcinate or entire.

5. Sisymbrium.

Pubescence of forked hairs, leaves all pinnately dis-17. Sophia. sected.

Pods 4-angled.

Stem leaves clasping by a cordate base. 21. Conringia. Stem leaves not clasping.

Seeds plump; leaf-blades entire or toothed.

19. Ervsimum.

8. Barbarea. Seeds flat: leaf-blades pinnatifid. Pods with a long, distinct beak.

Beak flat, sword-like, usually with a seed in its base.

6. Sinapis. 4. Brassica. Beak conic or 4-angled, seedless.

b. Pods flattened parallel to the broad partition.

Pods orbicular, with flattened, wing-like margins. 20. Alyssum. Pods not wing margined, rarely orbicular.

Valves of the pod nerveless.

Seeds in two rows; pods usually short.

16. Draba.

Seeds in one row; pods long.
Stem leafy at least below.
Stem leafless below, 2-4 leaved above. 10. Cardamine. 11. Dentaria.

Valves nerved and reticulated.

Pods short, orbicular to linear-oblong. 16. Draba. 18. Arabis. Pods elongated, linear.

1. Stanleva, 444.

1. Stanleya pinnata (Pursh) Britton. In the western part of the state. Culbertson; McCook; Sheridan county.

2. Thelypodium (Iodanthus). 444.

1. Thelypodium integrifolium (Nutt.) Endl. In the western part of the state, mostly in the foot-hills. Alliance; Dawes county; Deuel county; Gordon; Pine Ridge.

3. Lepidium. 445.

Peppergrasses.

Stem leaves clasping, base auricled; perennials. 1. L. draba. Stem leaves neither clasping nor auricled; annuals.

Petals conspicuous, at least equalling the sepals. 2. L. virginicum. Petals minute, or wanting, rarely more than half as long as the 3. L. apetalum. sepals.

1. Lepidium draba L.

Introduced in the eastern part of the state, but still rare. Lincoln; Wymore.

2. Lepidium virginicum L.

Common in the eastern part of the state, less so in the western. Lincoln; Wahoo.

3. Lepidium apetalum Willd.

Common all over the state. Callaway; Kearney; Minden; Red Cloud; Thedford.

4. Thlaspi. 446.

Penny Cress. French-weed. 1. Thlaspi arvense L. A rather common weed in the eastern part of the state. Ayr: Brunswick; Clay Center; Johnson; Lincoln; Pawnee City; Plainview; St. Paul.

5. Sisymbrium. 448.

Pods less than 2 cm. long; pedicels 2 mm. long; flowers 3 mm. long. 1. S. officinale.

Pods 5 cm. long or more; pedicels 6-8 mm. long; flowers 6 mm. long. 2. S. altissimum.

1. Sisymbrium officinale (L.) Scop. Hedge Mustard. Common in the eastern part of the state. Lincoln; Wahoo.

Tumbling Mustard. 2. Sisymbrium altissimum L. Common over most of the state. Cowles; Ewing; Franklin; Grand Island; Newark.

3. Sisymbrium loeselii L.

In an alfalfa field near Arcadia.

6. Sinapis (Brassica). 449.

Beak as long as rest of pod, fruiting pedicel about 10 mm. long.

Beak shorter than rest of pod, pedicels about 5 mm. long.

2. S. arvense.

White Mustard. 1. Sinapis alba. L.

Reported from Weeping Water.

Wild Mustard. 2. Sinapis arvense L. Frequent as a weed in grain fields. Douglas county; Lincoln.

7. Brassica, 451.

Pods less than 2 cm. long, appressed, on pedicels less than 5 mm.

Pods over 2 cm. long, spreading, on pedicels 2-5 cm. long.

2. B. juncea.

Black Mustard. 1. Brassica nigra (L.) Koch. A common weed, especially in oat fields, over most of the state. Kearney; Nemaha; O'Neill; Ponca; Red Cloud; Wahoo; Weeping Water.

2. Brassica juncea (L.) Cosson.

A common weed, especially in grain fields.

8. Barbarea, 451.

1. Barbarea barbarea (L.) MacM.

Barbarea vulgaris R. Br. Accidental in cultivated ground. Callaway.

9. Roripa (Radicula). 451.

Terrestrial or marsh plants; leaves pinnatifid; petals yellow.

Plants glabrous or nearly so.

1. R. sinuata.

Styles 2-3 cm. long. Styles 1 mm. long or less.

Flowers 2-3 mm. broad; pedicels 2-4 mm. long. 2. R. obtusa.

Flowers 4-6 mm. broad; pedicels 6 mm. long in fruit.

3. R. palustris. 4. R. hispida. Plants more or less hirsute. Aquatic plants; leaves pinnate; petals white. 5. R. nasturtium.

1. Roripa sinuata (Nutt.) Hitch. A common weed all over the state. Bellevue; Crete; Fairbury; Fremont; Kearney; Lincoln; Nebraska City; St. James; Whitney.

2. Roripa obtusa (Nutt.) Britton. Common in wet ground or shallow water. Big Springs; Crete; Minden; Newark; Red Cloud; Wahoo; Whitman.

3. Roripa palustris (L.) Bess.

An amphibious hydrophyte. Common throughout the state. Indianola; Kearney; Lincoln; St. James; Walton; Whitman.

4. Roripa hispida (Desv.) Britton. Callaway: Kennedy: Lincoln.

5. Roripa nasturtium (L.) Rusby. Water Cress. In shallow water throughout the state. Bellevue; Grand Rapids; Lincoln; Squaw canyon; Wahoo creek.

10. Cardamine. 453.

Leaves pinnate; plant more or less pubescent. Leaves simple; plant glabrous.

1. C. hirsuta. 2. C. bulbosa.

Hairy Bitter-cress. 1. Cardamine hirsuta L. In moist places and in streams in the sand-hills. Grand Rapids.

2. Cardamine bulbosa (Schreb.) B. S. P. Spring-cress. In wet places in the eastern part of the state. Burwell; Callaway; Fremont: Peru: Richardson county.

11. Dentaria, 455.

1. Dentaria laciniata Muhl. Tooth-wort. In meadows and wooded bluffs, mostly along the Missouri. Nemaha; Peru; Table Rock.

12. Physaria. 457.

Double Bladder-pod. 1. Physaria didymocarpa (Hook.) A. Gray. In the foot-hills, infrequent. Scotts Bluff county.

13. Lesquerella. 457.

Bladder-pods.

Ovary and pods stellate pubescent.

Lower leaves 1-1.5 cm. long; pedicels 6-12 mm. long.

1. L. spathulata. Lower leaves 5-8 cm. long; pedicels over 15 mm. long. 2. L. argentea.

Ovary and pods glabrous.

Sparingly pubescent; stem much branched. 3. L. gracilis. Densely stellate pubescent; stem simple. 4. L. ovalifolia.

1. Lesquerella spathulata Rydb.

In the western part of the state. Belmont; Harrison; Whitney.

2. Lesquerella argentea (Pursh) MacM. Common in dry, sandy prairies. Belmont; Box Butte county; Brunswick; Ewing; Pine Ridge; Sioux county; Weigand; Valentine.

3. Lesquerella gracilis (Hook.) S. Wats.

In the southeastern part of the state. Weeping Water.

4. Lesquerella ovalifolia Rydb.

In dry soil in the western part of the state. Kimball county.

14. Bursa (Capsella). 459.

Shepherd's-purse. 1. Bursa bursa-pastoris (L.) Britton. A common weed in the eastern part of the state. Fairbury: Ft. Robinson; Lincoln; Valentine.

15. Camelina. 459.

False Flax. 1. Camelina sativa (L.) Crantz. Common over most of the state. Broken Bow; Crete; Lincoln; Pine Ridge; Valentine; Weeping Water.

16. Draba, 460.

Petals white or wanting; stems leafy only below. 1. D. caroliniana. 2. D. nemorosa. Petals yellow, fading to whitish, notched.

1. Draba caroliniana Walt. Whitlow Grass. Common all over the state. Crookston; Fairbury; Lincoln; Minden; Nebraska City; Neligh; Red Cloud; Valentine; Weeping Water.

. 2. Draba nemorosa L. In the western part of the state. Alliance; Ft. Robinson; Rushville.

17. Sophia (Sisymbrium). 462.

Seeds in one row in each cell of the pod. Pods 15-25 mm. long, 1 mm. wide.

Pods 8-14 mm. long, 2 mm. wide.

Seeds in two rows in each cell of the pod; pods 5-8 mm. long.

1. S. sophia. 3. S. incisa.

1. A. dentata.

2. A. hirsuta.

2. S. pinnata.

1. Sophia sophia (L.) Britton. Ewing; Greeley; Ord; Springview.

2. Sophia pinnata (Walt.) Britton. Ta Chadron; Lincoln; Merriman; Ponca; Wahoo; Whitney. Tansy Mustard.

3. Sophia incisa (Engelm.) Greene. Probably occurs all over the state. Weeping Water; Wild Cat mountains.

18. Arabis (Including Turritis). 463.

Rock-cresses.

Base of stem-leaves auricled, clasping.

Seeds in one row in each cell of the pod. Pedicels 2-4 mm. long, pods spreading. Pedicels 6-12 mm. long, pods nearly erect. Seeds in two rows in each cell of the pod.

4. A. glabra. Pods erect, 5-8 cm. long. Pods reflexed, 2-5 cm. long. 5. A. holboellii. 3. A. canadensis.

Base of leaves narrowed, not clasping.

1. Arabis dentata T. & G.

In the eastern part of the state. Lincoln. 2. Arabis hirsuta (L.) Scop.

Arabis ovata (Pursh) Poir. In the eastern part of the state. Lincoln; Nebraska City; Neligh; Ponca: Valentine.

3. Arabis canadensis L. In the southeastern part of the state. Nebraska City. 4. Arabis glabra (L.) Bernh.

In the western part of the state. Dismal river; Long Pine.

5. Arabis holboellii Hornem.

In the foot-hill regions of the western part of the state. Banner county; Dawes county; Ft. Robinson.

19. Erysimum, 465.

Flowers 4-5 mm. high.

Pods less than 3 cm. long, pedicels slender. 1. E. cheiranthoides. Pods 3 cm. or more long, pedicels stout. Flowers about 8-20 mm. high. 3. E. repandum.

Flowers about 8 mm. high. Flowers 12-20 mm. high.

2. E. inconspicuum. 4. E. asperum.

Worm-seed Mustard. 1. Erysimum cheiranthoides L. Introduced over most of the state. Dismal river; Lincoln; Loup City; Pine Ridge; St. James; Valentine; Wahoo.

2. Erysimum inconspicuum (S. Wats.) MacM. Introduced but not common. Lincoln.

3. Erysimum repandum L. Long Pine.

4. Erysimum asperum DC. Common in the western part of the state. Box Butte county; Chadron; Deuel county; Ft. Robinson; Kimball; Pine Ridge; Valentine.

20. Alyssum. 466.

Alyssum. 1. Alyssum alyssoides L. Sometimes escapes from cultivation, Fairbury; Plainview.

21. Conringia. 467.

Hare's-ear Mustard. 1. Conringia orientalis (L.) Dumort. Introduced from the west. Lincoln.

22. Berteroa. 466.

Hoary Alyssum. 1. Berteroa incana (L.) DC. Introduced in grass and alfalfa seed. Bethany; Plainview.

5. RESEDACEÆ.

1. Reseda. 469.

Mignonette. 1. Reseda lutea L. Rarely escapes from cultivation. Weeping Water.

CARYOPHYLLALES.

Trees or shrubs; flowers diœcious, in aments. 2. Salicaceæ. Herbs or vines, sometimes woody at the base; flowers not in aments. Fruit a capsule, dehiscent by valves or teeth, or circumscissile.

Ovary one-celled.

Sepals 5 or 4; nodes usually swollen. 1. Caryophyllaceæ. Sepals 2; leaves usually succulent. 4. Portulacaceæ.

Ovary 2-several-celled.

Petals present; hydrophytes. Petals wanting; plant prostrate, spreading.

3. Elatinaceæ. 5. Aizoaceæ. Fruit indehiscent or bursting irregularly; petals wanting.

8. Phytolaccaceæ. Fruit a berry.

Fruit an achene or utricle.

Fruit a lenticular or triangular achene; stipules usually united, sheathing, i. e. ocreae.

10. Polygonaceæ. 10. Polygonaceæ. Fruit a utricle or anthocarp; stipules not forming ocreae.

Calyx corolloid, its limb deciduous, the base persistent around the fruit.

7. Nyctaginaceæ.

Calvx not corolloid, green or scarious.

Leaves with scarious stipules. 1. Caryophyllaceæ.

Leaves without stipules.

Flowers usually bractless, bracts if present not scarious. 9. Chenopodiaceæ. Flowers with scarious bracts, sepals usually also scari-8. Amaranthaceæ. ous.

1. CARYOPHYLLACEÆ.

Pink Family.

Calyx of united sepals, styles distinct to the base.

Calyx with ten or more ribs.

Styles 5.

1. Agrostemma. Alternate with the calvx teeth. 3. Lychnis. Opposite to the calyx teeth. 2. Silene. Styles 3-4.

Calvx with 5 ribs.

Petals with a scale at the base of the blade; flowers 2.5 cm. 4. Saponaria. Petals not appendaged at the base of the blade; flowers 8 mm. 5. Vaccaria.

Calyx of distinct sepals; styles united or distinct.

Petals present.

Petals deeply 2-parted. Capsule globose or oblong, often not exceeding the calyx. 6. Alsine.

Capsule cylindric, often curved, much exceeding the calyx. 7. Cerastium.

Petals entire or merely emarginate. Seeds many, without a membranous appendage. 8. Arenaria. Seeds few, with a membranous appendage at the hylum.

9. Moehringia. Petals minute or wanting.

Ovules and seeds numerous, sepals toothed. 10. Loeflingia. Ovule and seed solitary, sepals not toothed.

Sepals awn-tipped; styles united to the stigma. 11. Paronychia. Sepals not awned; styles mostly distinct. 12. Anychia.

1. Agrostemma. 388.

Corn-cockle. 1. Agrostemma githago (L.) Ait. A common weed in wheat fields. Lincoln; Minden; Weeping Water.

2. Silene, 388.

Leaves apparently verticillate in fours. Leaves all opposite.

1. S. stellata.

Calvx bladdery inflated.

Flowers few, subtended by leaf-like bracts. 2. S. alba. 3. S. latifolia. Flowers numerous, bracts small or wanting.

Calyx not bladdery, merely expanded by the capsule.

Annuals. Glabrous, the upper nodes glutinous.

4. S. antirrhina.

Hirsute or pubescent.

Flowers in a loose panicle, night blooming.

Flowers in one-sided spikes.

5. S. noctiflora.

6. S. dichotoma. 7. S. menziesii. Perennials, flowers axillary and terminal.

1. Silene stellata (L.) Ait. Starry Campion. Common in the eastern part of the state, mostly in woods and thickets. Ashland; Cass county; Crete; Lincoln; Neligh; Nemaha; Niobrara: Pierce: Richardson county; Wahoo.

2. Silene alba Muhl.

In the eastern part of the state. Lincoln.

3. Silene latifolia (Mill.) Britton & Rendel. Bladder Campion. Frequent in alfalfa fields. Kennedy; Royal; Valentine; Wood River.

Sleepy Catchfly. 4. Silene antirrhina L. Common in waste places over most of the state. Grand Island; Lincoln; Minden; Valentine.

6. Silene dichotoma Ehrh.

Mostly in alfalfa fields. Royal; Weeping Water.

7. Silene menziesii Hook.

In dry soil in the western part of the state. War Bonnet canyon.

3. Lychnis. 391.

Freely branching, night blooming, mostly diecious. 1. L. alba. Simple or but little branched, petals small. 2. L. drummondii.

1. Lychnis alba Mill. White Campion. Common in Peck's grove in the eastern part of Lincoln. Plainview.

2. Lychnis drummondii (Hook.) S. Wats.

Common in dry soil in the foot-hills of the western part of the state. Harrison; Pine Ridge; Plummer Ford; Sheridan county; Sioux county.

4. Saponaria. 393.

1. Saponaria officinalis L. Bouncing-bet. Frequently escapes from flower gardens. Hat Creek basin; Long Pine; Lincoln; O'Neill; Plainview; Red Cloud; Richardson county.

5. Vaccaria (Saponaria), 393.

1. Vaccaria vaccaria (L.) Britton. Cow-herb. A common weed in grain-fields. Crete; Emerson; Lincoln; Plainview: Valentine.

6. Alsine, 394.

Leaves ovate, the lower petioled. 1. A. media. Leaves linear, or nearly so, sessile. 2. A. longifolia. 1. Alsine media L. Chickweed.

Introduced, becoming a common weed. Lincoln; Red Cloud.

2. Alsine longifolia (Muhl.) Britton.

In low wet ground, along streams in the western part of the state. Dismal river; Plummer Ford.

7. Cerastium, 397.

Sepals about half as long as the petals.

Leaves linear or linear-oblong, narrowed at the base. 4. C. arvense. Leaves spatulate or lanceolate, the basal petioled.

2. C. longipedunculatum.

Sepals about as long as the petals. Perennials; sepals 5-6 mm. long. Annuals; sepals 3-4 mm. long.

1. C. vulgatum. 3. C. brachypodum.

- Mouse-ear Chickweed. 1. Cerastium vulgatum L. In the southeastern part of the state. Crete; Ft. Robinson; Long
- Nodding Chickweed. 2. Cerastium longipedunculatum Muhl. Mostly in the eastern part of the state. Box Butte county; Holdrege; Lincoln; Minden.

3. Cerastium brachypodum (Engelm.) Robinson.

In dry soil over most of the state. Box Butte county; Gordon; Lincoln; Minden; Pullman; Valentine.

4. Cerastium arvense L. In dry, rocky soil in the northwestern part of the state. Ft. Robinson; War Bonnet canyon.

8. Arenaria, 400.

Stems usually less than one dm. high; flowers in dense cymes.

1. A. hookeri.

Stems over one dm. high; flowers in diffuse cymes.

2. A. stricta. 1. Arenaria hookeri Nutt. In dry, rocky places, mostly in the foot-hills. Belmont; Crawford; Ft. Robinson; Hat Creek basin; Pine Ridge.

2. Arenaria stricta Michx. In the western part of the state. Franklin; Red Cloud.

9. Moehringia. 402.

1. Moehringia lateriflora (L.) Fenzl. In the northwestern part of the state. Long Pine; Valentine; War Bonnet canyon.

10. Læflingia. 403.

1. Læflingia texana Hook.

In dry soil in the western part of the state. Belmont.

11. Paronychia. 404.

Stems prostrate, spreading; flowers axillary, solitary, or in small cymes.

1. P. depressa. 2. P. jamesii. Stems erect: flowers in terminal cymes.

1. Paronychia depressa (Nutt.) A. Nels.

Rare on dry hills in the western part of the state.

2. Paronychia jamesii T. & G. Common in dry soil in the western part of the state. Banner county; Box Butte county; Deuel county; Franklin; Pine Ridge; Sioux county.

12. Anychia. 404.

1. Anychia canadensis (L.) B. S. P. Forked Chickweed. In woods in the southeastern part of the state. Nehawka; Weeping Water.

2. ELATINACEÆ.

Elatine, 629.

1. Elatine triandra Schk.

In shallow water in ponds or creeping on muddy banks. Exeter.

3. SALICACEÆ.

Willow Family.

Flowers subtended by fimbriated or incised bracts; stamens usually numerous; disc large, cup-shaped.

1. Populus. Flowers subtended by entire bracts; stamens usually few, often two; disc minute.

2. Salix.

1. Populus. 308.

Leaves not much longer than wide.

Petiole terete.
Petiole flattened.

1. P. balsamifera.

Leaf-blades broadly deltoid or cordate, abruptly long acuminate.

4. P. sargentii.

Leaf-blades suborbicular, acute or short acuminate.

5. P. tremuloides.

Leaves at least twice as long as wide.

Leaf-blade three times as long as the petiole, not long acuminate.

2. P. angustifolia.

Leaf-blade not more than twice as long as the petiole, abruptly long acuminate.

3. P. acuminata.

1. Populus balsamifera L.

Balsam Poplar.

Rare in the canyons of the Hat Creek basin.

2. Populus angustifolia James. Narrow-leaved Cottonwood. Rare in the Hat Creek basin. Sioux and Scotts Bluff counties.

3. Populus acuminata Rydb.

Rare in the northwestern part of the state. Gering.

4. Populus sargentii Dode. Western Cottonwood.
Populus occidentalis (Rydb.) Britton.
Common along streams all over the state. Lincoln; Red Cloud;

Stuart; Thedford; Valentine.

5. Populus tremuloides Michx.

Common in canyons in the northwestern part of the state. Hat Creek basin; Valentine.

2. Salix. 310.

Willows.

Leaves distinctly serrulate, or if entire linear or linear-lanceolate.

Leaves glossy as if varnished above, broad, stipules glandular.

3. S. lucida.

Leaves not glossy, often narrower. Leaves finely and closely serrulate.

Aments appearing with the leaves; stamens several.

Leaves narrowly lanceolate; petioles short; capsule twice as long as its pedicel.

Leaves broader; petiole longer; capsule about as long as 2. S. amygdaloides. its pedicel.

Aments appearing before the leaves; stamens two; stipules 4. S. cordata. large and usually persistent. Leaves with distant teeth, or entire; linear to linear-lanceolate. 5. S. fluviatilis.

Leaves entire or sparingly serrulate, puberulent or tomentose beneath or becoming glabrate in age; stamens two.

Aments appearing with the leaves; old leaves glabrate or sparingly 6. S. bebbiana. tomentose beneath.

Aments appearing before the leaves; leaves permanently densely gray tomentose beneath, edges revolute.

Black Willow. 1. Salix nigra Marshall. In low, wet places, mostly along streams, in the eastern part of the state. Fairbury; Lincoln; Nemaha; Peru; Wahoo.

Peach-leaved Willow. 2. Salix amygdaloides Anders. Along streams over most of the state. Crete; Ewing; Lincoln; Nance county; O'Neill; Red Cloud; Saunders county; St. James.

Glossy Willow. 3. Salix lucida Muhl. Along streams in the eastern part of the state. Fairbury; Weeping

Diamond Willow. 4. Salix cordata Muhl. Common, especially along streams and on wooded islands. Belmont; Burwell; Cherry county; Long Pine; Minden; Mullen; Norway; Peru; Talmage; Thedford.

Sand-bar Willow. Common, forming dense thickets in wet places mostly along streams. Crete; Lincoln; Milford; Peru; Scotts Bluff county; Thedford; Valen-5. Salix fluviatilis Nutt. tine; Weeping Water.

6. Salix bebbiana Sarg.

In dry soil in the western part of the state. Belmont; Pine Ridge. Prairie Willow. 7. Salix humilis Marshall. In dry prairies. Anselmo; Cass county; Cherry county; Crete; Ewing; Long Pine; Minden; Weeping Water.

4. PORTULACACEÆ.

Purslane Family.

Ovary superior; capsule not circumscissile; perennials. Seeds numerous; leaves all basal, terete. 1. Talinum. Claytonia.
 Portulaca. Seeds 3-6; leaves few, not all basal. Ovary partly inferior; capsule circumscissile; annuals.

1. Talinum. 385.

1. T. parviflorum. Petals 5 mm. long; stamens 5. Petals usually 8-10 mm. long; stamens 12-50; roots very thick. 2. T. calycinum.

Fame-flower. 1. Talinum parviflorum Nutt. In dry soil mostly in the western part of the state. Long Pine; Minden.

2. Talinum calveinum Engelm.

In dry soil in the western part of the state. Ft. Robinson; Kennedy; Snake river; Valentine.

2. Claytonia, 385.

1. Claytonia virginica L. Spring-beauty. Frequent in shady woods along the Missouri. Bellevue; Omaha.

3. Portulaca, 386.

Purslane. 1. Portulaca oleracea L. A common weed all over the state. Cheyenne county; Hooker county; Lincoln; Wahoo; Weeping Water.

5. AIZOACEÆ.

1. Mollugo, 384.

1. Mollugo verticillata L. Carpet-weed. A common weed over most of the state. Endicott; Hastings; Kearney; Long Pine; Minden; Mullen; O'Neill; Plainview; Red Cloud.

6. PHYTOLACCACEÆ.

1. Phytolacca. 381.

1. Phytolacca decandra L. Poke-berry. In the southeastern part of the state. Richardson county.

7. NYCTAGINACEÆ.

Four-o'clock Family.

Flower cluster subtended by an involucre of united bracts; fruit ribbed. 1. Allionia. Flower cluster subtended by an involucre of distinct bracts: fruit winged. 2. Abronia.

1. Allionia (Oxybaphus), 382.

Leaves broad, often cordate, all distinctly petioled. 1. A. nyctaginea. Leaves narrower, never cordate, all or at least the upper sessile. Leaves ovate to lanceolate.

2. A. hirsuta.

Pubescence of long hairs.

Pubescence of short hairs or wanting below the inflorescence.

Leaves linear.

3. A. albida. 4. A. linearis.

1. Allionia nyctaginea Michx. Umbrella-wort. Common all over the state. Crete; Fairbury; Gordon; Lincoln; Mullen; Newcastle; Weeping Water; Wood Lake.

2. Allionia hirsuta Pursh. Hairy Umbrella-wort. Common in dry valleys of the sand-hills and on dry hills over the rest of the state. Ainsworth; Anselmo; Hat Creek basin; Kearney; Lincoln; Long Pine; Minden; Mullen; Thedford.

3. Allionia albida Walt. Pale Umbrella-wort. Garden county.

4. Allionia linearis Pursh. Narrow-leaved Umbrella-wort. Common on dry prairies throughout the state. Alliance; Cedar county; Crete; Deuel county; Fairbury; Franklin; Hastings; Lincoln; Long Pine; Red Cloud; Sioux county.

2. Abronia. 383.

Sand-puffs.

Flowers white, fruit 8-10 mm. high. Flowers pink, fruit 2-3 cm. high.

1. A. fragrans. 2. A. micrantha.

1. Abronia fragrans Nutt.

Common in the sand-hills and in the foot-hill regions of the western part of the state. Alliance; Banner county; Benkelman; Ft. Robinson; Norfolk; Pine Ridge; Sheridan county; Sioux county.

2. Abronia micrantha (Torr.) Chois. Tripterocalyx micranthus Hook.

In the western part of the state. Court House Rock.

8. AMARANTHACEÆ.

Amaranth Family.

Plants green, stamens with distinct filaments, leaves alternate.

Calyx present in all flowers.

Calyx wanting in the pistillate flowers; diœcious.

Plants woolly, stamens with united filaments, leaves opposite.

3. Freelichia.

1. Amaranthus. 377.

Flowers terminal, in more or less elongated spikes.

Sepals clawed, utricle indehiscent; diœcious.

Sepals not clawed, utricle circumscissile.

1. A. torreyi.

Spikes 8-14 mm. thick, stem usually pubescent.

Spikes 4-6 mm. thick, stem glabrous.

3. A. hybridus.

Spikes 4-6 mm. thick, stem glabrous. Flowers all in short axillary spikes.

Plant prostrate.

Plant prostrate.
Plant erect, bushy branched; a tumble-weed.

1. A. blitoides.
5. A. græcizans.

1. Amaranthus torreyi (A. Gray) Benth.
In dry soil in the western part of the state, not common. Plummer Ford.

2. Amaranthus retroflexus L.

A common weed all over the state. Crete; Lincoln; Long Pine; Mullen; Nebraska City; Red Cloud; Stromsburg; Wahoo; Weeping Water.

Slender Pigweed.
In the eastern part of the state. Nebraska City; Red Cloud.

4. Amaranthus blitoides S. Wats.

A common weed over the entire state.

Belmont; Crete; Hastings;
Lincoln; Mullen; Scotts Bluff; Valentine; Weeping Water.

5. Amaranthus græcizans L. Tumble Weed. Common all over the state, but most common in the sand-hill regions. Minden; Valentine.

2. Acnida, 379.

Fruit rough, indehiscent or bursting irregularly.

1. A. tuberculata.
2. A. tamariscina.

Water-hemp. 1. Acnida tuberculata Mog.

A weed in wet soil. Cody; Lincoln; Valentine.

2. Acnida tamariscina (Nutt.) Wood.

In wet soil over most of the state. Kennedy; Nemaha; Plummer Ford: Valentine.

3. Froelichia, 380.

Crest of the fruit a continuous dentate ridge: plant over 6 dm. tall. 1. F. campestris.

Crest of the fruit interrupted, processes almost distinct; plant less than 6 dm tall 2. F. gracilis.

1. Froelichia campestris Small.

Common in dry places, especially in the sand-hill regions. Anselmo; Cherry county; Knox county; Mullen; Red Cloud; Royal; Thomas county; Valley Junction; Valentine.

2. Froelichia gracilis Moq.

In dry, sandy places. Deuel county.

9. CHENOPODIACEÆ.

Goosefoot Family.

Herbaceous plants.

Leaves normal.

Flowers, at least some of them, perfect.

Flowers with several sepals.

Leaves not linear, usually lobed.

Plants erect; fruiting calyx not winged. 1. Chenopodium. Plants bushy: forming tumble weeds; fruiting calvx winged. 2. Cycloloma.

Leaves linear, entire. Leaves not spiny.

Leaves not fleshy; styles elongated. Leaves fleshy; styles short.

3. Kochia. 10. Dondia. Leaves spine-tipped; calyx winged. 11. Salsola.

Flowers with only a single sepal.
Leaves three-lobed; fruit not winged. 3. Monolepis. Leaves narrow, entire; fruit winged. 7. Corispermum.

Flowers all staminate or pistillate, the pistillate enclosed between two partly united bracts.

4. Atriplex. Leaves reduced to scales; stems jointed. 8. Salicornia.

Shrubs.

Pistillate flowers enclosed between two partly united bracts.

Bracts not woolly; foliage scurfy. 4. Atriplex. Bracts densely woolly; foliage stellate pubescent. 5. Eurotia. Pistillate flowers not enclosed between bracts; calyx winged in fruit; spiny plants. 9. Sarcobatus.

1. Chenopodium, 368.

Leaves mostly entire, the lower rarely lobed.

Leaves white-mealy beneath. 2. C. leptophyllum. Leaves green on both sides, lanceolate to oblong lanceolate.

3. C. boscianum. Leaves mostly dentate or lobed.

Calyx not red and fleshy in fruit, stamens 5.

Leaves white-mealy beneath.

Leaves ovate to lanceolate, much longer than wide.

Leaves broadly triangular-hastate, nearly as wide as long.

5. C. incanum.

Leaves green on both sides or but slightly mealy beneath.

Leaves as broad as long.

4. C. fremontii. Leaves sinuate-dentate. Leaves sharply dentate, with 1-4 large spreading teeth on 7. C. hybridum. each side.

Leaves much longer than wide.

Foliage not strongly scented, leaves mostly entire.

3. C. boscianum.

Foliage strongly scented.

Leaves, at least some of them, pinnately lobed.

9. C. botrys.

Leaves repand-dentate, undulate or the upper entire. 10. C. ambrosioides.

Calyx reddish and slightly fleshy in fruit; stamens 1 or 2.

8. C. rubrum.

Lamb's-quarters. 1. Chenopodium album L. A common weed in fields all over the state. Anselmo; Belmont; Broken Bow; Hastings; Lincoln; Long Pine; Mullen; Peru; Red Cloud; Thedford; Valentine; Wood River.

2. Chenopodium leptophyllum (Moq.) Nutt.

A common weed in the western part of the state. Custer county; Deuel county; Kearney; Lodge Pole creek; Mullen; Pishelville; Plummer Ford; Valentine.

3. Chenopodium boscianum Moq.

Throughout most of the state, but not common. Belmont; Burkett; Long Pine; Red Cloud.

4. Chenopodium fremontii S. Wats.

Common in the western part of the state. Alliance; Anselmo; Banner county; Custer county; Paddock; Valentine; Whitman.

5. Chenopodium incanum (S. Wats.) Heller.

In dry ground in the western part of the state. Valentine.

6. Chenopodium urbicum L.

Reported from Cherry county.

7. Chenopodium hybridum L. Maple-leaved Goosefoot. A common weed in waste places over most of the state. Crete; Harrison; Lincoln; Long Pine; Pishelville; Plummer Ford; Red Cloud: Valentine.

Red Goosefoot or Pigweed. 8. Chenopodium rubrum L. In the western part of the state in alkaline or saline soil. Alliance; Grant county; Whitman.

9. Chenopodium botrys L.

Feather Geranium.

Mexican Tea.

Valentine.

10. Chenopodium ambrosioides L. In the southeastern part of the state. Nemaha.

2. Cycloloma 372.

1. Cycloloma atriplicifolium (Spreng.) Coult. Tumble-weed. Occurs all over the state, but most common in the sand-hills. Anselmo; Antelope county; Chelsea; Cherry county; Grand Island; Haigler; Lincoln; Long Pine; Louisville; Minden.

3. Monolepis. 372.

1. Monolepis nuttalliana (R. & S.) Greene Throughout the state, but not common. Central City; Chadron; Deuel county; Hastings; Long Pine.

4. Atriplex. 372.

Herbs with broad, triangular-hastate leaves; annuals.

Plants green.
Plants silvery-scurfy.

Shrubs with narrow, linear-oblong to oblanceolate leaves; perennials.

Bracts not broadly winged, united to the middle.

Bracts broadly winged, united to near the top.

4. A. canescens.

- 1. Atriplex hastata L. Orache. Common in saline and alkaline meadows. Alliance; Chadron; Kearney; Lexington; Lincoln.
- 2. Atriplex argentea Nutt. Saltweed. In alkaline and saline soil. Salt, basin at Lincoln; Scotts Bluff county.
- 3. Atriplex nuttallii S. Wats. Common in alkaline soil in the western part of the state. Hat Creek basin; Long Pine; Scotts Bluff county.
- 4. Atriplex canescens (Pursh) James. Probably occurs in the western part of the state.

5. Eurotia. 374.

1. Eurotia lanata (Pursh) Moq. White Sage, Winter Fat. A xerophyte of the foot-hill region of the western part of the state. Where abundant, valuable for winter forage. Banner county; Cheyenne county; Hat Creek basin; Lawrence Fork.

6. Kochia. 374.

1. Kochia scoparia (L.) Roth. Cultivated in flower gardens and often escapes. Blue Hill; Minden; Oxford; Red Cloud.

7. Corispermum. 374.

1. Corispermum hyssopifolium L. Bug-seed. In sandy soil. Box Butte county; Crawford; Lincoln; Scotts Bluff; Valentine.

8. Salicornia, 375

1. Salicornia europæa L. Common in salt basins along Salt creek, Lincoln.

Glasswort.

9. Sarcobatus. 375.

Sarcobatus vermiculatus (Hook.) Torr. Grease-wood.
 In the bad-lands of the western part of the state. Hat Creek basin.

10. Dondia, 376.

Sea-blite. 1. Dondia depressa (Pursh) Britton. In salt basins and alkaline soil. Alliance; Crawford; Chadron; Lexington; Lincoln; Minden.

11. Salsola, 376.

Russian Thistle. 1. Salsola pestifer A. Nels. Introduced and a common weed, especially in dry localities or in dry seasons. Aten; Genoa; Lincoln; Long Pine; Valentine.

10. POLYGONACEÆ.

Buckwheat Family.

Leaves without ocreæ; flowers involucrate. Leaves with ocreæ; flowers not involucrate. Outer sepals spreading in fruit, the inner usually winged, often 2. Rumex. tuberculate. Outer sepals erect in fruit, sometimes winged; the inner never

winged or tuberculate.

Achene little if at all exserted. Achene much exserted.

4. Polygonum. 3. Fagopyrum.

1. E. alatum.

2. E. flavum.

4. E. multiceps.

3. E. chrysocephalum.

1. Eriogonum.

1. Eriogonum. 351.

Achene 3-winged. Achenes not winged.

Involucres in umbels or capitate clusters. Involucres in umbels, 4-5 mm. high. Involucres capitate, about 3 mm. high.

Flowers yellow, glabrous. Flowers white or rose-colored, villous.

Involucres in open cymes. Peduncles not deflexed. Perennials with a woody base.

Flowers yellow; leaves all basal.

Leaves oblong to linear-oblong, flat. 5. E. campanulatum. Leaves narrowly linear, edges revolute. 6. E. brevicaule. Flowers not yellow, usually white; stems leafy.

Style branches longer than the ovary, exserted. 7. E. corymbosum.

Style branches shorter than the ovary, included. Leaves oblong or oblanceolate. Leaves linear or linear-oblong. 9. E. microthecum. 8. E. effusum.

Annuals, not woody at the base.

Stem leafy below. Leaves all basal. Peduncles deflexed.

10. E. annuum. 11. E. gordonii.

12. E. cernuum.

Winged Eriogonum. 1. Eriogonum alatum Torr. In sandy soil in the western part of the state. Deuel county.

2. Eriogonum flavum Nutt. In the sand-hill and foot-hill regions. Belmont; Deuel county: Harrison; Hat Creek basin; Pine Ridge.

3. Eriogonum chrysocephalum A. Gray. Nebraska, according to Rydberg's Flora of Colorado. 4. Eriogonum multiceps Nees.

In dry prairies and bad-lands of the western part of the state. Hat Creek basin; Scotts Bluff county; Sioux county.

5. Eriogonum campanulatum Nutt.

Nebraska, according to Rydberg's Flora of Colorado.

6. Eriogonum brevicaule Nutt.

On dry plains in the western part of the state. Scotts Bluff county.

7. Eriogonum corymbosum Benth.

Cheyenne county.

8. Eriogonum effusum Nutt.

On dry prairies in the western part of the state. Kimball county; Scotts Bluff county.

9. Eriogonum microthecum Nutt.

In dry soil in the western part of the state. Cheyenne county; Kimball county.

- 10. Eriogonum annuum Nutt.

 Common in sand-hill and foot-hill regions. Anselmo; Brunswick; Haigler; Harrison; Kearney; Mullen; Pine Ridge; Pishelville; Sioux county; Valentine.
- 11. Eriogonum gordonii Benth.

Rare in the western part of the state.

12. Eriogonum cernuum Nutt.

Dry plains and bad-lands of the western part of the state. Banner county; Cheyenne county; Kimball county; Scotts Bluff county.

2. Rumex. 354.

Flowers diœcious, lower leaves hastate, foliage acid. 1. R. acetocella. Flowers perfect, leaves not hastate, foliage not acid.

Wings not spiny-margined.

Fruits 2 cm. or more wide, calyx red. 2. R. venosus.

Fruits less than 2 cm. wide.

Not more than one of the calyx lobes tubercled. Inner perianth lobes 8-9 mm. broad, reniform.

5. R. patientia.

Inner perianth lobes 5-6 mm. broad, deltoid-ovate.
4. R. altissimus.

Three of the calyx lobes tubercled.

Wings 6 mm. long, blunt at the apex. 6. R. britannica.

Wings not over 4 mm. long, acute at the apex.

Leaves wavy-margined, dark green, not glaucescent.

7. R. crispus.
Leaves flat, light green, and glaucescent.
Wings spiny-margined.

One calyx segment tuberculate, spines short. 8. R. obtusifolius.

Three of the calyx segments tuberculate, spines long.

9. R. persicarioides.

- 1. Rumex acetocella L. Sorrel or Sour-Dock. Introduced in various localities in the state. Beatrice; Lincoln; Minden; Valentine.
- 2. Rumex venosus Pursh. Winged Dock. Common in dry, sandy places. Antelope county; Central City; Cherry

county; Deuel county; Fairbury; Thedford; Valentine; War Bonnet canyon.

3. Rumex salicifolius Weinm.

Rumex mexicanus Meisn. A common weed in low, moist ground. Long Pine; Scotts Bluff county: Weeping Water.

Pale Dock. 4. Rumex altissimus Wood. A common weed over most of the state. Bassett; Callaway; Franklin: Lincoln: Ponca; Red Cloud; Wahoo.

Giant Dock. 5. Rumex patientia L. A weed in waste places in the eastern part of the state. Mead; Kearnev.

Great Water Dock. 6. Rumex britannica L. Common in low ground. Burwell; Dismal river; Grant county; Keyapaha county: Long Pine.

Curled Dock. 7. Rumex crispus L. A common weed throughout the state. Crawford; Coon creek; Lincoln; Red Cloud; Scotts Bluff county; Talmage.

8. Rumex obtusifolius L. Mostly in the eastern part of the state. Burwell; Long Pine; Red Cloud.

9. Rumex persicarioides L. A common weed all over the state. Antelope county; Bellevue; Fremont; Grand Island; Kennedy; Mullen; Pishelville; Scotts Bluff; St. Paul.

3. Fagopyrum. 357.

1. Fagopyrum fagopyrum (L.) Karst. Sometimes escapes from cultivation.

Buckwheat.

4. Polygonum. 358.

Wild Buckwheats and Smartweeds.

Stems without prickles.

Erect or decumbent herbs, never twining; calyx lobes neither winged nor prominently keeled in fruit.

Leaves large, at least some of them over 5 cm. long. Racemes continuous, flowers less than a cm. apart.

Racemes terminal only, usually solitary.

Usually aquatic; racemes short, leaves not acuminate.

1. P. amphibium.

Terrestrial in wet soil, racemes longer, leaves acuminate. 2. P. muhlenbergii.

Racemes several, axillary as well as terminal. Ocreae without a fringe of marginal bristles.

3. P. lapathifolium. Racemes drooping. Racemes erect.

Homostylic, all styles and all stamens of about equal length, slightly if at all exserted.

4. P. pennsylvanicum. Heterostylic, long styles 3-4 times as long as the short ones, the long styles and the long stamens 5. P. longistylum. exserted.

Whitman.

Ocreae fringed with marginal bristles. Racemes drooping, interrupted; calyx green, punctate. 9. P. hydropiper. Racemes erect. Achenes lenticular or three angled, styles 2 or 3. Styles parted to near the base. Calyx rose-colored; achene 2 mm. long; perennial. 7. P. persicarioides. Calvx green; achene 2.5 mm. long. 10. P. punctatum. Styles parted to about the middle. Annual, often glabrous; leaves usually with a dark blotch near the center. 6. P. persicaria. Perennial, strigillose; usually growing in wet soil.

8. P. hydropiperoides. Racemes interrupted, flowers a cm. apart. 11. P. virginianum. Leaves small, not over 5 cm. long and generally much less. Fruit not reflexed. Achenes 2-3 mm. long, little if at all exserted. Plants decumbent. Leaves mostly acute: achenes 2 mm. long. 12. P. aviculare. Leaves mostly obtuse; achenes 3 mm. long. 13. P. buxiforme. Plants erect or ascending. Leaves oval or ovate; flowers one or two in each axil. 14. P. erectum. Leaves lanceolate or linear-lanceolate; flowers several together in the axillary clusters. Stems terete; achenes reticulated. Flowers larger, 2-3 mm. long, exceeding the stipules. 15. P. ramosissimum. Flowers small, less than 2 mm. long, exceeded by the frayed stipules. 16. P. prolificum. Stems 4-angled, very slender; leaves plicate. 18. P. tenue. Achenes 5-6 mm. long, exserted. 17. P. exsertum. Fruit reflexed; perianth 4-5 mm. long. 19. P. douglassii. Climbing vines; outer calyx lobes keeled or winged in fruit. Outer calyx lobes merely keeled; achenes 3 mm. long. 20. P. convolvulus. Outer calyx lobes winged and decurrent in fruit; achenes 4-5 mm. long. 21. P. scandens. Stems with recurved prickles. 22. P. sagittatum. 1. Polygonum amphibium L. Water Smartweed. In water or sometimes in muddy places. Cherry county; Peru; Richardson county; Swan Lake; Thedford; Valentine; Whitman. 2. Polygonum muhlenbergii (Meisn.) Wats. In wet places and in shallow water. Cherry county; Emerson; Kennedy; Richardson county; Whitman. 3. Polygonum lapathifolium L. A common weed in the eastern part of the state, less common in the

western part. Dawes county; Kennedy; Lincoln; Long Pine; Mullen; Nemaha: Paddock; Red Cloud; Riverton; Talmage; Weeping Water;

4. Polygonum pennsylvanicum L.

A common and widely distributed weed. Some of the specimens placed here may belong to the next species. Franklin; Indianola; Kennedy; Lincoln; Mullen; Omaha; Paddock.

5. Polygonum longistylum Small.

A very common weed which was long confused with the last. They seem to be almost identical except for the dimorphic flowers. Our specimens do not show black stigmas or lilac flowers, as given in the original description. Kearney; Lincoln; Omaha; Papillion; Rising City.

6. Polygonum persicaria L.

Common in the eastern part of the state. Bassett; Callaway; Lincoln: Paddock: Valentine: Weeping Water.

7. Polygonum persicarioides H. B. K.

Over most of the state, but not common. Newark; Thedford.

8. Polygonum hydropiperoides Michx. Mild Water-pepper. In wet soil, not very common. Ainsworth; Atkinson; Callaway.

Common Smartweed. 9. Polygonum hydropiper L. In eastern part of the state. Callaway; Franklin; Grand Rapids; Lincoln: Nemaha: Weeping Water.

10. Polygonum punctatum Ell.

Common in the eastern half of the state. Banner county; Grand Island; Grant county; Hooker county; Indianola; Lincoln; Thomas county; Wahoo.

11. Polygonum virginianum L.

Common in the southeastern part of the state. Endicott; Lincoln; Nebraska City; Nemaha; Richardson county.

Knot-grass, Door-weed. 12. Polygonum aviculare L. A common weed all over the state. Callaway; Fort Robinson; Grand Island; Kearney; Lincoln; Mullen; Pine Ridge; Talmage;

13. Polygonum buxiforme Small.

Common all over the state. Alliance; Cheyenne county; Hooker county; Mullen.

14. Polygonum erectum Roth.

Common in the eastern part of the state. Ewing; Fort Robinson; Lincoln; Talmage.

15. Polygonum ramosissimum Michx.

Common throughout the state. Anselmo; Hooker county; Lancaster county; Laurel; Mullen; Rock county; Red Cloud.

16. Polygonum prolificum (Small) Robinson. Nebraska, according to Britton and Brown.

17. Polygonum exsertum Small. Valentine.

18. Polygonum tenue Michx.

In the western part of the state. Atkinson; Anselmo; Franklin; Lincoln: Valentine.

19. Polygonum douglassii Greene.

On Lawrence Fork in Banner county.

20. Polygonum convolvulus L. Bindweed. Common in fields and waste places all over the state. Anselmo; Fairbury; Hat Creek basin; Hooker county; Kimball county; Lin-

coln; Long Pine; Talmage; Thedford.

21. Polygonum scandens L. Hedge Bindweed. Common in woods mostly along streams. Arapahoe; Banner county; Deuel county; Keyapaha county; Lancaster county; Long Pine.

22. Polygonum sagittatum L. Tear-thumb.
In wet soil mostly in woods along streams. Endicott; Paddock; Thedford.

GERANIALES.

Trees, with pinnate or trifoliolate leaves.

6. Rutaceæ.

Herbs; leaves various.

Leaves trifoliolate, leaflets obcordate.

Leaves cleft into numerous narrow lobes.

Leaves neither trifoliolate nor cleft into numerous narrow lobes.

2. Oxalidaceæ.

1. Geraniaceæ.

1. Geraniaceæ.

Leaves pinnate. 5. Zygophyllaceæ.

Leaves simple.

Flowers with one sepal spurred.

3. Balsaminaceæ.

Flowers without spurs.

Flowers irregular, stamens 8, united into 1 or 2 sets.

7. Polygalaceæ.

Flowers regular.

Ovary round, 4-10 celled.

Ovary three-lobed or flattened, 3-4 celled; flowers much reduced.

4. Linaceæ.

Ovary three-lobed, three-celled, styles three; plants with milky juice.

8. Euphorbiaceæ.
Ovary flattened, 4-celled, styles two.
9. Callitrichaceæ.

1. GERANIACEÆ.

Geranium Family.

Leaves digitately divided or lobed, as wide as long.
Leaves pinnately divided, much longer than wide.

1. Geranium.
2. Erodium.

1. Geranium. 573.

Flowers 25 mm. broad and more. Flowers 10-12 mm. broad.

1. G. maculatum.

Flowers purple.

Leaves 3-divided, segments pinnatifid; stamens 10.

2. G. robertianum.

Leaves lobed; fertile stamens 5.

S. G. pusillum. Flowers pale pink to white; sepals awn-pointed.

4. G. carolinianum.

1. Geranium maculatum L.

Rare. Reported only from Long Pine.

2. Geranium robertianum L. Reported only from Bancroft.

3. Geranium pusillum Burm, f.

Probably occurs over most of the state, but not common. Ainsworth; Long Pine; Palmer; Red Cloud.

4. Geranium carolinianum L. Carolina Crane-bill. Lincoln; Louisville; Table Rock; south of Omaha.

2. Erodium, 575.

1. Erodium cicutarium (L.) L'Her. Reported from Lincoln.

Alfilaria or Filarie.

2. OXALIDACEÆ

1. Oxalis. 575.

Flowers rose-violet, rarely white. Flowers yellow.

1. O. violacea.

Flowers in small umbels; pedicels reflexed in fruit. 2. 0. stricta. Flowers in cymes; pedicels remaining erect or spreading.

3. O. cymosa.

1. Oxalis violacea L.

Purple Sheep-sorrel.

Ionovalis violacea (L.) Small. Throughout the state, except the extreme western part; common in prairies in the eastern part. Bassett; Buffalo county; Crete; Ewing; Fairbury; Lincoln; Long Pine; Peru; Valentine.

2. Oxalis stricta L.

Yellow Sheep-sorrel.

Xanthoxalis stricta (L.) Small. Common over most of the state. Callaway; Cherry county; Fairbury; Guide Rock; Lincoln; Thedford.

3. Oxalis cymosa Small.
Xanthoxalis cymosa Small.

Lincoln; Newcastle; Red Cloud; Scotia Junction; Valentine.

3. BALSAMINACEÆ.

1. Impatiens. 611.

Sac of spurred sepal longer than broad, spur about ½ as long as

Sac of spurred sepal broader than long, spur less than 1/3 as long as 2. I. pallida.

Spotted Touch-me-not. 1. Impatiens biflora Walt. Mostly in open woods along streams. Bellevue; Dismal river; Paddock; Peru; Richardson county; Valentine; Weeping Water.

Pale Touch-me-not. 2. Impatiens pallida Nutt. In woods in the eastern part of the state. Bellevue; Lincoln; Nemaha; Riverton; Weeping Water.

4. LINACEÆ.

Flax Family.

1. Linum 578.

Flowers blue. Flowers less than 2 cm. broad; annual.

1. L. usitatissimum. 2. L. lewisii.

Flowers over 2 cm. broad; perennial.

3. L. sulcatum.

Flowers yellow.
Flowers small, not 15 mm. broad; annual.

Flowers large, over 15 mm. broad.

Petals less than one cm. long, sepals not wing-crested.

4. L. rigidum.

Petals over one cm. long, sepals strongly wing-crested.

5. L. berlandieri.

1. Linum usitatissimum L. Flax, Linseed. Often escapes from cultivation. Broken Bow; Cody; Ponca; Red Cloud: Saunders county.

2. Linum lewisii Pursh.

In the canyons of the Hat Creek basin. Minden; War Bonnet canyon.

3. Linum sulcatum Riddell.

On dry hills in the eastern part of the state.

Bassett; Box Butte;

On dry hills in the eastern part of the state. Bassett; Box Butte; Crete; Fairbury; Kearney; Laurel; Lincoln; Long Pine; Valentine.

4. Linum rigidum Pursh.

Large-flowered Yellow Flax.

4. Linum rigidum Pursh.

Common in dry soil in the western part of the state. Anselmo:
Box Butte county; Dismal river; Hat Creek basin; Kearney; Mullen;
Pine Ridge; Ponca; St. Helena; Thedford; Valentine.

5. Linum berlandieri Hook.

Nebraska, according to Rydberg's Flora of Colorado.

5. ZYGOPHYLLACEÆ.

1. Tribulus. 580.

1. Tribulus terrestris L. Bur-nut. Introduced and becoming common. Aurora; Lincoln; Newport; Red Cloud.

6. RUTACEÆ.

Rue Family.

Leaves pinnate. Leaves trifoliolate. 1. Xanthoxylum. 2. Ptelea.

1. Xanthoxylum. 581.

1. Xanthoxylum americanum Mill. Prickly Ash. Mostly along streams in the eastern part of the state. Ashland; Guide Rock; Long Pine; Milford; Nebraska City; Ponca; Royal; Rulo; Weeping Water.

2. Ptelea. 581.

1. Ptelea trifoliata L. Hop Tree. Thoroughly established and spreading from seed at Hastings.

7. POLYGALACEÆ.

Milkwort Family.

1. Polygala. 582.

Leaves some of them verticillate in 4's and 5's.

Leaves acute; spikes long peduncled.

Leaves broader, obtuse; spikes sessile or short pediceled.

2. P. cruciata.
Leaves all alternate.

Flowers not white, inflorescence globose, over 8 mm. thick; leaves oblong or linear-oblong.

3. P. viridescens.
Flowers white; leaves entire, their edges revolute.

4. P. alba.

1. Polygala verticillata L. On dry prairies over the entire state. Cherry county; Dakota county; Ewing; Kearney; Lincoln; Minden; Polk county; Red Cloud; Weigand: Weeping Water.

2. Polygala cruciata L.

Nebraska, according to Gray's Manual.

3. Polygala viridescens L.

Atkinson: Neligh: Rock county.

4. Polygala alba Nutt.

Common in prairies in the western part of the state. Anselmo; Belmont; Box Butte county; Culbertson; Kearney; Newcastle; Phelps county; Sioux county; Valentine.

8. EUPHORBIACEÆ.

Spurge Family.

1. Croton. Plants canescent with stellate hairs. Plants glabrous or pubescent with simple hairs.

Styles fringed; pistillate flowers in the axils of leafy bracts.

2. Acalypha.

Styles 2-cleft; pistillate flowers in involucres accompanied by sev-3. Euphorbia. eral staminate flowers.

1. Croton, 586.

1. Croton texensis (Klotzsch.) Muell. Arg. Croton. Common in prairies in the western part of the state. Anselmo; Banner county; Broken Bow; Deuel county; Franklin; Haigler; Holt county: Mullen; Pine Ridge; Sheridan county.

2. Acalypha. 588.

Three-seeded Mercury. 1. Acalypha virginica L. Common in woods in the eastern part of the state. Bellevue; Franklin; Grand Island; Lincoln; Riverton; Wahoo; Weeping Water.

3. Euphorbia. 590.

Leaves not equilateral, with oblique bases; plants often prostrate. spreading.

Leaves entire, glabrous.

Stem ascending; leaves linear.

Glands of the involucre with conspicuous white corolla-like 1. E. petaloidea. appendages.

Glands greenish white or obsolete, inconspicuous.

2. E. flagelliformis.

Stems prostrate or spreading; leaves broader.

Leaves oblong or ovate, usually mucronulate. Leaves orbicular to oval, obtuse. 3. E. geyeri.

Capsule 2 mm. in diameter, seeds smooth, 1 mm. long.

Capsule 3 mm. in diameter, seeds wrinkled. 10. E. fendleri. Leaves serrate or dentate, sometimes only near the tip. Glabrous or nearly so.

Plants prostrate or spreading; leaves 4 to 15 mm. long.

5. E. serpyllifolia. Seeds pitted or faintly wrinkled.

Seeds strongly transversely wrinkled. 7. E. glyptosperma. Plants erect or ascending; leaves 10 to 30 mm. long. 11. E. preslii.

Plants more or less hairy.

6. E. stictospora. Seeds narrow, twice as long as wide.

Seeds not twice as long as wide, faces wrinkled.

Involucre not split; leaves mostly blotched. 8. E. maculata. Involucre deeply split on one side. 9. E. humistrata. Involucre deeply split on one side.

Leaves equilateral at the base, not oblique; plants erect. · Leaves opposite, or alternate, not verticiliate, petioled.

Leaves all opposite, entire; glands of involucre five, each with a petaloid appendage; stem striate-angled. 12. E. hexagona. Leaves some of them alternate, involucre with 1 to 4 glands, appendages usually wanting.

Leaves linear to linear-lanceolate. 15. E. cuphosperma.

Leaves broader.

Leaves mostly opposite, coarsely dentate, uniform.

16. E. dentata. Leaves mostly alternate, variable in shape, gland sessile.
17. E. heterophylla.

Leaves at base of inflorescence verticillate, the lower alternate or scattered, sessile.

Leaves entire.

14. E. marginata. Upper leaves white-margined.

Upper leaves not white-margined.

Leaves 2 to 4 cm. long; glands of the involucre with peta-13. E. corollata. loid appendages. 13. E. Leaves smaller, the lower often reduced to scales.

Rays of the umbel few, with few leaves in the whorl at its base. 21. E. robusta. Rays of the umbel numerous, with numerous leaves in the whorl at its base. 20. E. cyparissias.

Leaves serrulate; capsule warty. Seeds dark brown, faintly reticulated. 18. E. obtusata. Seeds reddish brown, distinctly reticulated. 19. E. missouriensis.

1. Euphorbia petaloidea Engelm. Common in the western part of the state, in sandy soil. Anselmo; Banner county; Benkelman; Brunswick; Franklin; Pine Ridge; Schuyler: Sheridan: Sioux county: Valentine: Weigand.

2. Euphorbia flagelliformis Engelm. Ft. Robinson: Valentine.

3. Euphorbia geyeri Engelm. & Gray. On dry, sandy ridges and bluffs in the western part of the state. Long Pine; Natick; Paddock; Plummer Ford; Thedford; Valentine.

4. Euphorbia serpens H. B. K. In prairies all over the state. Bassett; Kennedy; Lincoln; Niobrara; Red Cloud.

5. Euphorbia serpyllifolia Pers. In prairies and meadows throughout the state. Grand Island: Lincoln; Niobrara; Saunders county; Valentine.

6. Euphorbia stictospora Engelm. Nebraska, according to Britton and Brown. 7. Euphorbia glyptosperma Engelm. In sandy prairies and fields, most abundant westward. Bordeaux; Broken Bow; Dismal river; Fairbury; Franklin; Hooker county; Mullen; Newcastle; Thedford; Valentine.

8. Euphorbia maculata L. Spotted Spurge. Throughout the state. Ainsworth; Endicott; Fairbury; Lincoln; Saunders county; Steele creek; Valentine; Weeping Water.

9. Euphorbia humistrata Engelm.
In the eastern part of the state. Lincoln; Red Cloud; Weeping Water.

10. Euphorbia fendleri T. & G. In the western part of the state. Cheyenne county; Upper Lawrence Fork.

11. Euphorbia preslii Guss. A common weed over most of the state. Arapahoe; Lincoln; Minden; Pishelville; Red Cloud; Saunders county.

12. Euphorbia hexagona Nutt. Common in dry, sandy soil throughout the state. Bellevue; Brunswick; Haigler; Norfolk; Pine Ridge; Ravenna; Red Cloud; Riverton; Spencer; Valentine.

13. Euphorbia corollata L. Showy Spurge. Common in meadows in the eastern part of the state. Bellevue; Crete; Cass county; Lincoln; Nemaha; Peru; Wahoo; Weeping Water.

14. Euphorbia marginata Pursh.

A common pasture weed in clay soil. Anselmo; Beatrice; Benkelman; Crete; Laurel; Lincoln; Neligh; Niobrara; Wymore.

15. Euphorbia cuphosperma (Engelm.) Bois. In shady canyons in the foot-hills. Banner county.

16. Euphorbia dentata Michx. Over most of the state. Franklin; Lincoln; Riverton.

17. Euphorbia heterophylla L. In woodlands and thickets, mostly in the eastern part of the state. Crete; Ft. Niobrara; Franklin; Indianola; Keyapaha county; Lincoln; Niobrara; Red Cloud; Wabash.

18. Euphorbia obtusata Pursh. Low prairies in the eastern part of the state. Lincoln; Red Cloud.

19. Euphorbia missouriensis (Norton) Small. In prairies in the eastern part of the state. Beatrice; Crete; Fairbury; Lincoln; Red Cedar island; St. James.

20. Euphorbia cyparissias L. Sometimes escapes from cultivation. Crete; Lincoln.

21. Euphorbia robusta (Engelm.) Small.
In the western part of the state. Ft. Robinson; Pine Ridge; Sioux county.

9. CALLITRICHACEÆ.

1. Callitriche. 596.

1. Callitriche palustris L. Water-starwort. In shallow running water. Kennedy; Merriman; Pauline.

GUTTIFERALES.

None of the petals spurred, stamens usually numerous. Sepals 4 or 5, when 5 all nearly equal, styles 2-5. 1. Guttiferæ. Sepals 3 or 5, when 5 the 2 outer much smaller, style single or 2. Cistaceæ. 3. Violaceæ.

Lower petal spurred; stamens 5, two spurred.

1. GUTTIFERÆ. (HYPERICACEÆ.)

Petals 4, sepals 4 in unequal pairs. Petals 5, nearly equal.

1. Ascyrum.

Petals yellow, sometimes mottled.

Leaves normal. Leaves reduced to scales. Petals pink or purple.

2. Hypericum. 3. Sarothra. 4. Triadenum.

1. Ascvrum. 625.

1. Ascyrum hypericoides L. Nebraska, according to Britton and Brown.

2. Hypericum, 625.

Styles 5, capsule 5-celled. Styles 3, capsule 1-3-celled. 1. H. ascvron.

Capsule 3-celled, stamens many. 2. H. perforatum. Capsule 1-celled, stamens few, not more than 12.

Leaves lanceolate or ovate, over 4 mm. wide. Flowers not over 4 mm. wide, capsule 2-4 mm. long.

3. H. mutilum.

Flowers 6-10 mm. broad, capsule 8-10 mm. long. 4. H. majus. eaves linear, 2-4 mm. wide. 5. H. canadense. Leaves linear, 2-4 mm. wide.

1. Hypericum ascyron L.

Near streams in eastern part of the state. Nehawka.

Common St. John's-wort. 2. Hypericum perforatum L. In the eastern part of the state. Lincoln; Valentine.

3. Hypericum mutilum L.

Low ground in the eastern part of the state. Endicott.

4. Hypericum majus (A. Gray) Britton.

In moist soil over most of the state. Bellevue; Dismal river; Long Pine; Loup City; Lowell; Mead; Minden; Neligh.

5. Hypericum canadense L.

In wet, sandy soil in the western part of the state. Chelsea; Cody's lakes; Minden; Thedford.

3. Sarothra, 628.

1. Sarothra gentianoides L.

In sandy soil. Abundant in a pasture near Franklin.

4. Triadenum, 629.

1. Triadenum virginicum (L.) Raf. Marsh St. John's-wort. In wet soil mostly along streams. Chelsea; Ewing; Grand Rapids, Kennedy; Natick; Simeon.

2. CISTACEÆ.

Rock-rose Family.

Flowers yellow, petals 5 or wanting in some of the flowers, capsule 1. Helianthemum. 1-celled. Flowers greenish or purplish, petals 3, capsules 3-celled. 2. Lechea.

1. Helianthemum, 630.

Frost-weed. 1. Helianthemum majus (L.) B. S. P. In dry soil mostly in the eastern part of the state. Ewing; Long Pine; Louisville; Oreopolis; Swan lake.

2. Lechea. 631.

Leaves 4-10 mm. wide. Leaves 1-2 mm. wide. Inner sepals 1-nerved. Inner sepals 3-nerved. 1. L. villosa.

2. L. tenuifolia. 3. L. stricta. Hairy Pinweed.

1. Lechea villosa Ell. In dry soil, not common. Ewing; Macon; Minden.

2. Lechea tenuifolia Michx.

In sandy soil along Sand creek near Minden.

Prairie Pinweed. 3. Lechea stricta Leggett. In dry places, not common. Ewing; Long Pine; Swan lake.

3. VIOLACEÆ.

1. Viola, 633.

Violets.

Acaulescent; leaves basal except those on the runners; flowers never yellow.

Leaves, at least some of them, lobed or divided.

Leaves lobed, the terminal lobe broad.

Basal lobes usually many; cleistogamous flowers on horizontal 1. V. palmata. or deflexed peduncles. Basal lobes usually few; cleistogamous flowers on erect pedun-5. V. sagittata. 3. V. pedatifida.

Leaves pedately divided into narrow lobes. Leaves merely serrate or dentate.

Leaves broad, cordate or truncate at the base.

Glabrous or nearly so. Cleistogamous flowers on erect peduncles; leaves often toothed at the base.

5. V. sagittata.

Cleistogamous flowers on deflexed peduncles.

4. V. papilionacea.

Villous pubescent.

2. V. sororia.

Leaves narrowly lanceolate, tapering at the base.

6. V. lanceolata. Caulescent, stems leafy; flowers often yellow.

Stipules not laciniate.

Leaves tapering into margined petioles. Leaves cordate or truncate at the base. 7. V. nuttallii.

Petals lemon-yellow, leaves crenate-dentate. Petals not yellow, leaves merely serrate. Stipules laciniate, large and foliaceous.

8. V. eriocarpa.
9. V. canadensis. 10. V. refinesquii. 1. Viola palmata L.

In woods in the eastern part of the state. Omaha; Peru; Red Cloud.

2. Viola sororia Willd.

Lincoln; Red Cloud.

3. Viola pedatifida G. Don.

Common on the prairies in the eastern part of the state. Callaway; Falls City; Lincoln; Nebraska City; O'Neill; Tecumseh.

4. Viola papilionacea Pursh.

In woods and thickets, especially along streams, over most of the state. Fairbury; Lincoln; Scotia.

5. Viola sagittata Ait.

Reported from Stella.

6. Viola lanceolata L.

In wet meadows not common. Atkinson; Lynn.

7. Viola nuttallii Pursh.

In dry soil in the western part of the state. Alliance; Cuba; Ft. Robinson; Scotts Bluff county; Valentine.

8. Viola eriocarpa Schwein.

In woods and thickets in the eastern part of the state. Lincoln; Long Pine; Nebraska City; Peru; Roca.

9. Viola canadensis L.

In woods, mostly along the Missouri and the Niobrara. Bellevue; Belmont; Cuba; Ft. Robinson; Pine Ridge; Ponca; Sioux county.

10. Viola rafinesquii Greene.

Introduced in the eastern part of the state. Blue Springs; Lincoln; Stella.

MALVALES.

Flowers with petals.

Trees; stamens not united into a tube around the style.

1. Tiliaceæ. Herbs; stamen filaments forming a tube around the style.

2. Malyaceæ.

Flowers apetalous.

Trees.

Sap not milky; fruits separate. Sap milky; fruits aggregated.

Herbs or vines.

Leaves lobed or divided.

Leaves serrate, not lobed or divided.

3. Ulmaceæ.

4. Moraceæ.

4. Moraceæ. 5. Urticaceæ.

1. TILIACEÆ.

1. Tilia. 616.

1. Tilia americana L.

Mostly along streams in the eastern part of the state. Cuba; Long Pine: Omaha; Ponca; Richardson county; Royal; Valentine; Weeping Water; Wymore.

2. MALVACEÆ.

Mallow Family.

Carpels 1-ovuled.

Flowers mostly over 8 mm. broad, never yellow.

Stigmas linear, on the inner side of the style branches.

Carpels beakless; petals obcordate. 2. Callirrhoe. Carpels beaked; petals truncate.

Stigmas capitate; our species densely, silvery, stellate pubescent. 3. Malvastrum.

Flowers small, 4-8 mm. broad, yellow.

4. Sida.

Carpels 2-many-ovuled.

Involucel none.

5. Abutilon. 6. Hibiscus.

Involuced of numerous narrow bracts.

1. Malva, 618.

Erect or ascending; flowers over 15 mm. broad; carpels about 10. 1. M. sylvestris.

Procumbent; flowers less than 15 mm. broad, carpels about 15.

2. M. rotundifolia.

High Mallow.

1. Malva sylvestris L.

Rare in waste places. Beaver City: Red Cloud.

Cheeses, Running Mallow. 2. Malva rotundifolia L. Introduced in various localities throughout the state. Bazile Mills; Callaway; Kearney; Lincoln; Minden.

2. Callirrhoe, 619

Involucel wanting; flowers pink or white, 2-3 cm. broad.

1. C. alceoides.

Involucel of three bracts; flowers reddish purple, 2-6 cm. broad.

2. C. involucrata.

Poppy Mallow. 1. Callirrhoe alceoides (Michx.) A. Gray. Fairly common in the eastern half of the state. Cowles; Crete; Fairbury; Lincoln; Minden; Peru; Walton; Weeping Water.

2. Callirrhoe involucrata (T. & G.) A. Gray. Fringed Poppy Mallow. In dry soil throughout the state, common in the western part. Callaway; Cambridge; Franklin; Grand-Island; Kearney; Nebraska City; Nelson: Red Cloud.

3. Malvastrum. 620.

Red Mallow. 1. Malvastrum coccineum (Pursh) A. Gray. Common in dry soil in the western part of the state. Alliance; Antelope county; Belmont; Broken Bow; Grand Island; Red Cloud; Scotts Bluff; Valentine.

4. Sida. 620.

False Mallow. 1. Sida spinosa L. In dry soil in the southeastern part of the state. Nebraska City; Nemaha.

5. Abutilon. 621.

1. Abutilon abutilon (L.) Rusby. Indian Mallow, Velvet-leaf. A common weed in the eastern part of the state. Dakota county; Lincoln; Omaha; Peru; Weeping Water.

6. Hibiscus. 622.

Glabrous; flowers pink; involucral bracts not ciliate. 1. H. militaris. Pubescent with spreading hairs; flowers yellow; bracts of the invo-2. H. trionum. lucel ciliate.

1. Hibiscus militaris Cav. Halberd-leaved Rose-mallow. Along streams in the eastern part of the state. Ashland; Glen Rock; Hooper; Nemaha.

2. Hibiscus trionum L. Flower-of-an-hour. Introduced, common in the eastern part of the state. Grand Island; Lincoln; Minden; Pishelville; Red Cloud; Roca; Weeping Water.

3. ULMACEÆ.

Elm Family.

Fruit a samara; flowers borne on last year's twigs.
Fruit a drupe; flowers borne on twigs of the season.

1. Ulmus.
2. Celtis.

1. Ulmus, 337.

Samaras with ciliate margins; bud-scales not brown-tomentose.

Samaras with glabrous faces; branches not winged. 1. U. americana.

Samaras with pubescent faces; branches winged. 2. U. racemosa.

Samaras with smooth margins; bud-scales brown-tomentose; leaves very rough above.

3. U. fulva.

1. Ulmus americana L.

In moist, rich soil along streams over most of the state. Alliance; Culbertson; Hooker county; Lincoln; Saltillo; Wahoo.

2. Ulmus racemosa Thomas. Ulmus thomasi Sarg. Cork or Rock Elm.

Along streams, not common. Meadville; Plattsmouth; Valentine.

3. Ulmus fulva Michx. Slippery or Red Elm. Along streams, a smaller tree and less common than the white elm. Crete; Guide Rock; Red Cloud; Richardson county; Wahoo; Weeping Water.

2. Celtis. 339.

1. Celtis occidentalis L. Hackberry. Common throughout the state, mostly along streams. Anselmo; Aten; Banner county; Endicott; Hooker county; O'Neill; Red Cloud; Thedford.

4. MORACEÆ.

Trees.
Vines with lobed leaves.
Herbs with divided leaves.

1. Morus. 2. Humulus. 3. Cannabis.

1. Morus, 340.

Leaves rough above, pubescent beneath; fruit purple.

1. M. rubra.
Leaves smooth and shining; fruit whitish.
2. M. alba.

1. Morus rubra L. Red Mulberry. Along streams in the southeastern part of the state. Endicott; Nehawka; Nemaha; St. James.

2. Morus alba L. White or Russian Mulberry. Sometimes escapes from cultivation. Weeping Water.

2. Humulus. 341.

1. Humulus lupulus L. Hops. In woods and thickets throughout the state. Brunswick; Gage county; Holt county; Hooker county; Lincoln; Sioux county; Wahoo.

3. Cannabis. 341.

1. Cannabis sativa L. Hemp. Sometimes escapes from cultivation. Crete; Lincoln; Long Pine; Red Cloud; Rushville.

5. URTICACEÆ.

Nettle Family.

Leaves at least some of them opposite.

Plants with stinging hairs.

Plants without stinging hairs.

Calyx of pistillate flowers of 3 sepals; achene 1 mm. long.

Calyx of pistillate flowers tubular, 2-4 toothed; achene nearly 2 mm. long.
4. Boehmeria.

Leaves all alternate.

Leaves sharply serrate; flowers in loose axillary cymes, not involucrate.

Leaves entire; flowers glomerate, involucrate.

5. Parietaria.

1. Urtica. 342.

Leaves ovate, cordate; plant very bristly.

1. U. dioica.
Leaves lanceolate, rarely cordate; plant sparingly bristly.

2. U. gracilis. Stinging Nettle.

1. Urtica.

1. Urtica dioica L.
Reported from Weeping Water.

2. Urtica gracilis Ait.

Throughout the state, common in woods and thickets. Keyapaha county; Lincoln; Mullen; Plummer Ford; Red Cloud; Republican City; Walton.

2. Urticastrum. 342.

1. Urticastrum divaricatum (L.) Kuntze. Wood Nettle. Common in woods in the eastern part of the state. Endicott; Lincoln; Neligh; Saltillo; Valentine.

3. Pilea. 343.

1. Pilea pumila (L.) Gray.

Clear-weed.

In wet, shady places in the eastern part of the state. Burwell; Endicott; Fremont; Gage county; Lincoln; Long Pine; Mullen.

4. Boehmeria. 343.

1. Boehmeria cylindrica (L.) Willd. False Nettle. In wet, shady places throughout the state, except the extreme western part. Boelus; Callaway; Kearney; Natick; Pishelville; Sargent; Simeon.

5. Parietaria, 343.

Pellitory. 1. Parietaria pennsylvanica Muhl. In dry woods and thickets throughout the state. Belmont; Callaway; Long Pine; Lincoln; Red Cloud; Valentine; Weeping Water.

Subclass HETEROMERAE.

PRIMULALES.

Sepals and corolla lobes usually 5 or more, corolla normal; capsule circumscissile only in Anagallis and Centunculus. 1. Primulaceæ. Sepals and corolla lobes 4, corolla scarious; capsule circumscissile. 2. Plantaginaceæ.

1. PRIMULACEÆ.

Primrose Family.

Corolla not reflexed.

Capsule not circumscissile.

Scapose plants, with white or pink flowers. Leafy-stemmed plants, with yellow flowers.

Flowers solitary in the axils.
Flowers in axillary spike-like racemes or heads. Capsule circumscissile.

Flowers on peduncles over 1 cm. long. Flowers sessile or nearly so.

Corolla reflexed.

1. Androsace.

2. Steironema. 3. Naumbergia.

4. Anagallis.

5. Centunculus. 6. Dodecatheon.

, 1 Androsace. 714.

1. Androsace occidentalis Pursh. In dry soil throughout the state. Crete; Fairbury; Franklin; Lincoln; Nebraska City; Red Cloud; Valentine; Wahoo.

2. Steironema, 716.

Leaves ovate to ovate-lanceolate, on long ciliate petioles.

Leaves linear, sessile or nearly so.

1. S. ciliatum. 2. S. quadriflorum.

1. Steironema ciliatum (L.) Raf. Loosestrife. Common in low prairies and meadows throughout the state; often found in the edges of thickets, in ditches and along streams. Anselmo; Aten; Cherry county; Kearney; Lincoln; Minden; Sioux county: Talmage.

2. Steironema quadriflorum (Sims.) Hitch.

In the Republicna valley, not common. Franklin; Macon; Riverton.

3. Naumbergia, 717.

1. Naumbergia thyrsiflora (L.) Duby. Tufted Loosestrife. Frequent in marshes and edges of pools and streams in the sand-hills. Ewing; Grand Rapids; Grant county; Newark; Plainview; Valentine.

4. Anagallis, 718.

1. Anagallis arvensis L. Lincoln.

Scarlet Pimpernel.

5. Centunculus. 718.

1. Centunculus minimus L. Chaff-weed. Rare in dry soil. Atkinson; Fairbury; Fairfield; Johnson.

6. Dodecatheon. 719.

1. Dodecatheon radicatum Greene. Shooting Star. Common along streams in the western part of the state. Paxton.

2. PLANTAGINACEÆ.

Plantain Family.

1. Plantago. 856.

Leaves ovate, lanceolate or spatulate.

Leaves ovate.

Pyxis ovoid, circumscissile at the middle; foliage bitter.

Pyxis oblong, circumscissile much below the middle; foliage not bitter.

1. P. major.

2. P. rugelii.

Leaves lanceolate or spatulate.

Corolla of fertile flowers spreading.

Pyxis circumscissile at the middle.

Pyxis circumscissile below the middle.

Corolla of the fertile flower erect.

3. P. lanceolata.

4. P. eriopoda.

8. P. virginica.

Leaves linear or filiform.

Bracts not much longer than the flowers.

Leaves 3-8 mm. wide; spike dense.

Leaves 1 mm. wide; spike loosely flowered.

Bracts 2-10 times as long as the flowers.

Bracts 7-17 mm. long, 2-5 times as long as the flowers.

6. P. spinulosa. es as long as the flowers.

Bracts 10-30 mm. long, many times as long as the flowers.
7. P. aristata.

1. Plantago major L. Common Plantain. A common weed in waste places throughout the state. Anselmo; Belmont; Crete; Lincoln; Peru; Talmage; Tecumseh.

2. Plantago rugelii Dec. Red-stemmed Plantain. In waste places, less common than the last. Crete; Ewing; Grand Island; Lincoln; Republican valley.

3. Plantago lanceolata L. Buckhorn, Rib-grass. Common in the southeastern part of the state. Crete; Grand Island; Holdrege; Lincoln; Minden; O'Neill.

4. Plantago eripoda Torr.
In saline or alkaline soil. Alliance; Grand Island; Kearney; Sheridan county; Sidney; Wood River.

5. Plantago purshii R. & S. A common weed in dry soil throughout the state. Anselmo; Callaway; Deuel county; Fairbury; Lincoln; Perkins county; St. James; Sioux county; Wahoo.

6. Plantago spinulosa Dec. In dry soil, mostly in waste places. Kearney; Minden.

Large-bracted Plantain. 7. Plantago aristata Michx. In dry soil throughout the state. Brunswick; Hastings; Lincoln; Minden: Nemaha: Oreopolis: Valentine.

8. Plantago virginica L.

In dry soil in the southeastern part of the state. Weeping Water.

9. Plantago elongata Pursh.

In dry soil, not common. Anselmo; Lincoln; Mansfield; Weeping Water.

ERICALES.

Shrub; fruit a berry in our species. Herbs: fruit a capsule.

1. Ericaceæ. 2. Pyrolaceæ.

1. ERICACEÆ.

Heath Family.

1. Arctostaphylos. 706.

1. Arctostaphylos uva-ursi (L.) Spreng. Red Bear-berry, Kinnikinnik. In dry soil, in the sand-hills. Custer county.

2. PYROLACEÆ.

Wintergreen Family.

Leaves normal, evergreen. Leaves reduced to scales, not green. 1. Pyrola.

Flowers many; corolla gamopetalous. Flowers solitary; corolla polypetalous.

2. Pterospora. 3. Monotropa.

1. Pyrola, 693,

Raceme regular; capsule about 6 mm. in diameter. Leaf blades orbicular, rarely over 2.5 cm. long; scape 3-10-1. P. chlorantha. flowered. Leaf blades oval or elliptic, 3.5-4.5 cm. long; scape 7-15-flowered.

2. P. elliptica.

3. P. secunda. Raceme secund; capsule about 4 mm. in diameter. 1. Pyrola chlorantha Sw. Green-flowered Wintergreen. In dry pine woods in the western part of the state. War Bonnet canvon.

2. Pyrola elliptica Nutt. Shin-leaf.

In dry pine woods in the western part of the state. Long Pine. 3. Pyrola secunda L. One-sided Wintergreen.

In dry pine woods in the western part of the state. Sioux county.

2. Pterospora, 695.

1. Pterospora andromedea Nutt. Pine-drops. In the pine woods of the northwestern part of the state. Sioux county.

3. Monotropa. 696.

1. Monotropa uniflora L. Indian Pipe. Rare in dense woods along the Missouri. Washington and Cass counties.

1. Polemoniaceæ.

Subclass BICARPELLATAE.

POLEMONIALES.

Ovary not deeply lobed, carpels not separating into distinct nutlets at maturity.

Ovary 2-5-celled.

Fruit various: but neither a berry nor a large prickly capsule. 2. Convolvulaceæ. Twining vines.

Herbs not twining.

Ovary 3-celled, stigmas three.

Ovary 2-celled.

Flowers in dense capitate clusters.
Flowers solitary in the axils.

1. Polemoniaceæ.
2. Convolvulaceæ.
Fruit in our native species a berry or a prickly capsule, style

one with a terminal stigma. Ovary 1-celled, stigmas 2. 5. Solanaceæ. 3. Hydrophyllaceæ.

Ovary deeply 4 (or rarely 2)-lobed, carpels separating into 4 4. Boraginaceæ. nutlets at maturity.

1. POLEMONIACEÆ.

Phlox Family.

Leaves entire.

Leaves all, or at least the lower, opposite.

Perennials with large flowers; leaves all opposite.

Annuals with small flowers; upper leaves alternate.

2. Microsteris. Leaves alternate; flowers in capitate clusters. Leaves variously lobed or divided.

Calyx distended and at length ruptured by the capsule . 3. Gilia. Calyx not distended or ruptured by the capsule, calyx teeth spinytipped, flowers small in dense clusters. 5. Navarretia.

1. Phlox. 756.

Flowers clustered, 2-many at the ends of the stems or branches; leaves never imbricated.

Stems many-flowered; leaves usually over 2 cm. long.

Calvx teeth shorter than the tube, calvx 4 as long as the corolla.

Calyx teeth more than half the length of the tube.

P. paniculata.

Calyx teeth about ¼ the length of the tube. 1. P. maculata. Calyx teeth longer than the tube, calyx 1/2 as long as the corolla.

Flowers usually pink or purple; no sterile decumbent shoots or runners at the base. 2. P. pilosa.

Flowers bluish: sterile decumbent shoots or runners present 3. P. divaricata. at the base.

Stems 2-few-flowered; leaves not over 2 cm. long.

Flowers blue or lilac; stems caespitose, spreading from a 5. P. kelsevi. woody root.

Flowers white; stems erect from rhizomes. 8. P. douglasii. Flowers solitary at the ends of the stems or branches; leaves often imbricated.

6. P. bryoides. Leaves very short, about 2 mm. long.

Leaves longer, 4-14 mm. long.
Corolla-tube not longer than the calyx.
Corolla-tube longer than the calyx.

7. P. hoodii. 4. P. cæspitosa.

Phlox paniculata L. Garden Phlox. Occurs in the northeastern county of Kansas and probably in southeastern Nebraska.

1. Phlox maculata L. Reported from Talmage.

2. Phlox pilosa L. Hairy or Prairie Phlox. In dry soil in the eastern part of the state. Ashland; Emerson; Leshara; Omaha; Richardson county; Weeping Water.

3. Phlox divaricata L. In moist woods in the eastern part of the state. Bellevue; Lincoln; Omaha; Peru; Weeping Water.

4. Phlox cæspitosa Nutt. In dry soil in the foot-hills. Scotts Bluff county.

Phlox kelseyi Britton.
 Western Nebraska, according to Britton's Manual.

6. Phlox bryoides Nutt.
In dry soil in the western part of the state. Kimball county.

7. Phlox hoodii Richards.
In dry, sandy or rocky soil in the western part of the state. Fort Robinson; Gordon; Scotts Bluff county.

8. Phlox douglasii Hook. In dry, sandy soil in the western part of the state. Banner county; Hat Creek basin; Valentine.

2. Microsteris. 759.

1. Microsteris micrantha (Kellogg) Greene. Gilia micrantha Kellogg.

In dry, sandy soil in the western part of the state. Deuel county; Merriman.

3. Gilia, 759.

Flowers openly paniculate or thyrsoid-paniculate.

Leaves palmately divided into 3-7 narrow subulate lobes.

1. G. cæspitosa. Leaves pinnately divided. Flowers over 25 mm. long; corolla-tube many times as long as

the calyx.
Flowers white.
Flowers scarlet or red.
Flowers about 10 mm. long.

2. G. longifolia.
3. G. aggregata.
4. G. pinnatifida.

Flowers capitately or spicately glomerate.

Flowers in an elongated spicate thyrsus.

6. G. spicata.

Flowers mostly in capitate clusters at the ends of the branches

Flowers mostly in capitate clusters at the ends of the branches.

Corolla-tube but little longer than the calyx.

Corolla-tube about twice as long as the calyx.

7. G. pumila.

1. Gilia cæspitosa (Nutt.) A. Nels. Tufted Gilia. Leptodactylon cæspitosa Nutt.

In dry soil in the western part of the state. Scotts Bluff county.

2. Gilia longiflora (Torr.) Don. Long-flowered Gilia. In dry soil in the western part of the state. Box Butte county; Crawford; Kearney county; Rock county; Whitman.

3. Gilia aggregata (Pursh) Spreng. Nebraska, according to Britton's Manual.

4. Gilia pinnatifida Nutt.

Dry soil in the western part of the state. Scotts Bluff county.

5. Gilia spicata Nutt.

Banner county.

6. Gilia iberidifolia Benth.

In dry soil in the western part of the state. Belmont; Ft. Robinson; Scotts Bluff county; Sioux county.

7. Gilia pumila Nutt.

In dry soil in the western part of the state. Belmont; Hat Creek basin; Long Pine.

4. Collomia. 761.

1. Collomia linearis Nutt.

Dry soil, mostly in the sand-hill and foot-hill regions. Aten; Box Butte county; Brunswick; Deuel county; Hat Creek basin; Harrison; Pine Ridge.

5. Navarretia. 762.

1. Navarretia minima Nutt.

In dry, sandy soil in the northwestern part of the state. Rushville.

2. CONVOLVULACEÆ.

Morning-glory Family.

Green plants with normal leaves.

Styles distinct to the base, each 2-cleft; leaves sessile.

1. Evolvulus.

Styles united to the stigmas.

Stigmas ovoid or sub-globose; ovary usually 3-celled or the leaves linear.

Stigmas filiform to oblong-cylindric; ovary 2-celled; leaves never linear; peduncle with 2 bracts.

Yellowish plants: leaves reduced to small scales.

4. Cuscuta.

1. Evolvulus, 751.

1. Evolvulus pilosus Nutt.

In dry, sandy soil in the western part of the state. Deuel county; Fairbury; Kearney; Merriman; Minden; Valentine.

2. Ipomœa. 751.

Leaves linear; stems not trailing or twining; perennial with a very large root.

1. I. leptophylla.

Leaves broadly ovate, cordate; stems trailing or twining; annuals.

Leaves entire; sepals acute, usually less than 15 mm. long.

2. I. purpurea. Leaves 3-lobed; sepals with long linear tips, over 15 mm. long.

3. I. hederacea.

1. Ipomœa leptophylla Torr. Bush Morning-glory. In dry soil, mostly in the sand-hills and in the western part of the

state. Ainsworth; Banner county; Benkelman; Custer county; Deuel county; Lincoln; Long Pine; Plummer Ford; Royal; Valentine; Weigand.

Morning-glory. 2. Ipomœa purpurea (L.) Roth.

Sometimes escapes from cultivation. Richardson county.

Ivv-leaved Morning-glory. 3. Ipomœa hederacea Jacq. Introduced in the eastern part of the state. Havelock; Lincoln; Richardson county: Red Cloud.

3. Convolvulus, 753.

Bracts large, enclosing the calyx.
Glabrous or slightly hairy; leaves 5 cm. or more long, hastate, the lobes acute, often sinuate-dentate. 1. C. sepium.

Densely pubescent, leaves 5 cm. or less long, sagittate, the lobes rounded, entire.

2. C. repens. rounded, entire.

Bracts small, remote from the calyx.

Plant glabrous or nearly so; leaves hastate, entire. 3. C. arvensis.

Plant canescent; leaves usually lobed or dissected.

4. C. hermannioides.

Large Bind-weed. 1. Convolvulus sepium L. A common weed throughout most of the state. Fairbury; Indianola; Lincoln; Ponca; Valentine.

Trailing Bind-weed. 2. Convolvulus repens L. Common as a weed over a large part of the state. Callaway; Fairbury; Red Cloud.

3. Convolvulus arvensis L. Small Bind-weed. A common weed in fields and waste places. Spreads by adventitous buds on the roots. Grand Island; Lincoln; Nemaha; Wood River.

4. Convolvulus hermannioides A. Gray. Nebraska, according to Rydberg's Flora of Colorado.

4. Cuscuta, 754.

Styles little if any longer than the ovary, usually shorter.

Flowers sessile; corolla persistent at the base of the capsule. Corolla scales large, deeply fringed. 1. C. arvensis.

Corolla scales small, often reduced to a few teeth.

2. C. polygonorum.

Flowers pedicelled; corolla enclosing or persistent at the summit of the capsule.

Flowers 3-5 mm. long. Flowers about 2 mm. long. 3. C. indecora.

Corolla lobes about as long as the tube, the tips inflexed.

Corolla lobes half as long as the tube, the tips not inflexed. 5. C. cephalanthi.

Styles several times as long as the ovary.

Flowers pedicelled, with 2-several entire bracts at the base.

6. C. cuspidata. Flowers sessile, subtended by 8–15 serrulate bracts. 7. C. paradoxa.

1. Cuscuta arvensis Beyrich. Field Dodder. Fairly common on various herbs. Kearney; Lincoln; Minden; Red Cloud; Sheridan.

2. Cuscuta polygonorum Englem. Smartweed Dodder. Over most of the state. Bloomington; Callaway; Lincoln; Valentine.

3. Cuscuta indecora Choisy.
On various herbs and shrubs. Crawford; Holt county; Mullen; Red Cloud; Valentine; Wood Lake.

4. Cuscuta coryli Engelm. Hazel Dodder. On hazel, willow and various herbs. Arapahoe; Chelsea; Dismal river; Long Pine; Thedford.

Button-bush Dodder. 5. Cuscuta cephalanthi Engelm.

On willows. Kearney.

6. Cuscuta cuspidata Engelm. Cuspidate Dodder. On Ambrosia trifida and artemisiæfolia. Bellevue; Lincoln; Valentine: Whitman.

7. Cuscuta paradoxa Raf. Glomerate Dodder. Cuscuta glomerata Choisy.
On Helianthus, Solidago and Asclepias. Arapahoe; Holt county;
Kearney; Lincoln; Nemaha; Wahoo; Wood River.

3. HYDROPHYLLACEÆ.

Water-leaf Family.

Stamens included; corolla lobes convolute; annuals. 2. Nyctelea.

Stamens exserted; ours perennial.

Calyx lobes convolute in the buds; styles united almost to the 1. Hydrophyllum. Calvx lobes imbricated in the buds; styles in ours distinct for half their length. 3. Phacelia.

1. Hydrophyllum. 762.

1. Hydrophyllum virginicum L. Water-leaf. In rich woods in the eastern part of the state. Lincoln; Nebraska City: Peru; Ponca; Weeping Water.

2. Nyctelea (Macrocalyx). 763.

1. Nyctelea nyctelea (L.) Britton. In moist, shady places throughout the state. Box Butte county; Fairbury; Lincoln; Red Cloud; St. Helena; Thedford; Weeping Water.

3. Phacelia. 764.

1. Phacelia leucophylla Torr. In dry soil in the western part of the state. Harrison; Pine Ridge; Scotts Bluff county; Sioux county; War Bonnet canyon.

4. BORAGINACEÆ.

Borage Family.

Ovary not deeply 4-lobed; style terminal. 1. Heliotropium. Ovary deeply 4-lobed; style arising between the lobes. Flowers regular.

Nutlets prickly.

Nutlets spreading, extending but little above point of attachment.

2. Cynoglossum.

Nutlets erect, extending far above point of attachment.

Nutlets not prickly.

Receptacle conic, nutlets laterally attached.

Most of the leaves with axillary flowers.

Only the upper leaves with axillary flowers.

4. Allocarya.

Inflorescense naked or bracteolate.
Inflorescense leafy.

5. Cryptanthe.6. Oreocarya.7. Mertensia.

Receptacle flat or convex.

Inflorescense not leafy-bracted.
Inflorescense leafy-bracted.
Corolla lobes rounded.

8. Lithospermum.
9. Onosmodium.
10. Echium.

Corolla lobes acute. Flowers irregular.

1. Heliotropium, 767.

Flowers in dense scorpioid spikes.

Flowers mostly solitary, opposite the leaves.

1. H. spathulatum.
2. H. convolvulaceum.

1. Heliotropium spathulatum Rydb. Heliotropium curassavicum L.

In the western part of the state. Alliance; Banner county.

2. Heliotropium convolvulaceum (Nutt.) A. Gray. Euploca convolvulacea Nutt. Western Nebraska, according to Britton's Manual.

2. Cynoglossum. 768.

1. Cynoglossum officinale L. Hounds-tongue. Introduced in the eastern part of the state. Homesville; Weeping Water.

3. Lappula. 768.

Inflorescense leafy-bracted nearly or quite to the top.

Marginal prickles not united by their bases.

Prickles numerous, in two rows on the margins. 1. L. lappula.

Prickles 7-11, not in double rows.

3. L. occidentalis.

Marginal prickles united by their bases into a distinct cup in at

least 3 of the nutlets.

2. L. texana.

Inflorescense leafy-bracted only at the base, bracts minute above.

Marginal prickles distinct to the base or nearly so: fruiting nedi-

Marginal prickles distinct to the base or nearly so; fruiting pedicels deflexed.

Lower leaves over 25 mm. wide, the basal cordate; corolla 2 mm. wide.

4. L. virginiana.

Lower leaves less than 20 mm. wide.

Flowers over 6 mm. wide; fruit 6 mm. broad. 6. L. floribunda. Flowers less than 4 mm. broad; fruit 4 mm. broad. 5. L. deflexa.

Marginal prickles united for \(\frac{1}{3} \) to \(\frac{1}{2} \) of their length.

7. L. scaberrima.

1. Lappula lappula (L.) Karst. Stickseed. A common weed locally in the eastern part of the state. Lincoln; St. James; Wahoo.

2. Lappula texana (Scheele) Britton.

Lappula cupulata (A. Gray) Rydb. Common in the western part of the state. Alliance; Aten; Box Butte county; Perkins county; Thedford; Valentine.

3. Lappula occidentalis (S. Wats.) Greene.

In dry, sandy places in the western part of the state. Belmont; Deuel county; Phelps county; Pine Ridge; Valentine.

4. Lappula virginiana (L.) Greene. In woods and thickets, mostly in the eastern part of the state. Dakota county; Pishelville; Republican City; Weeping Water.

5. Lappula deflexa (Whal.) Garcke.

In woods and thickets in the western part of the state. Chadron; Beaver creek; Plummer Ford.

6. Lappula floribunda (Lehm.) Greene.

In the western part of the state, mostly in plum thickets. Banner county; Crawford; Pine Ridge.

7. Lappula scaberrima Piper.

In sandy soil in the western part of the state, according to Rydberg's Flora of Colorado.

4. Allocarya, 769.

1. Allocarya scopulorum Greene. Western Nebraska, according to Britton's Manual.

5. Cryptanthe. 769.

Nutlets unlike, 3 muricate and 1 smooth. 1. C. crassisepala. 2. C. fendleri. Nutlets alike, all smooth and shining.

1. Cryptanthe crassisepala (T. & G.) Greene.

In dry soil in the northwestern part of the state. Belmont; Deuel county; Hat Creek basin; Thedford.

2. Cryptanthe fendleri (A. Gray) Greene.

On high, dry plains and in the foot-hills and bad-lands in the north-western part of the state. Banner county; Harrison; Hat Creek basin; Sheridan county; Thedford.

6. Oreocarva, 770.

Corolla tube about equal to the calyx lobes, not exserted.

1. O. suffruticosa. Nutlets smooth, polished, brown.

Nutlets rough, tubercled or wrinkled.

Inflorescense a broad, open, round-topped thyrsus; its branches usually again branched.

Plants light yellowish-green; nutlets winged, regularly 2. O. hispidissima. wrinkled.

Plants dark green; nutlets merely acute-angled, irregularly wrinkled.

3. O. thyrsiflora. Inflorescense a narrow or spike-like thyrsus, if more open the

branches simple. Plants rough-hairy, over 1.5 dm high; corolla 6-10 mm. broad. 4. O. glomerata.

Plants silvery appressed-pubescent; less than 1.5 dm. high; corolla 4-6 mm. broad. 5. O. sericea.

Corolla tube much longer than the calyx lobes, long exserted.
6. O. fulvocanescens.

- 1. Oreocarya suffruticosa (Torr.) Greene. White Forget-me-not. Common in dry soil in the western part of the state. Banner county; Belmont; Box Butte county; Deuel county; Hat Creek basin; Plummer Ford; Sioux county.
- 2. Oreocarya hispidissima (Torr.) Gray. Nebraska, according to Rydberg's Flora of Colorado.
- 3. Oreocarya thyrsiflora Greene.
 On sandy hillsides in western Nebraska, according to Rydberg's Flora of Colorado.

4. Oreocarya glomerata (Pursh) Greene. A xerophyte of the table-lands and foot-hills of the western part of the state. Belmont; Deuel county; Scotts Bluff county; War Bonnet canyon.

5. Oreocarya sericea (A. Gray) Greene. In dry soil in the western part of the state. Alliance; Deuel county; Kimball county.

6. Oreocarya fulvocanescens (A. Gray) Greene. In canyons in the Hat Creek basin. War Bonnet canyon.

7. Mertensia. 771.

Flowers about 2.5 cm. long, corolla limb barely 5-lobed. 1. M. virginica. Flowers less than 1.5 cm. long, corolla manifestly 5-lobed.

Pedicels distinctly hirsute.

2. M. paniculata.

Pedicels glabrous or glandular.

3. M. lanceolata.

1. Mertensia virginica (L.) DC.

Rare in shady woods. Culbertson.

2. Mertensia paniculata (Ait.) G. Don.

2. Mertensia paniculata (Ait.) G. Don. Tall Lungwort. Reported from Sheridan county.

3. Mertensia lanceolata (Pursh) DC. Woods in War Bonnet canyon.

8. Lithospermum. 773.

Corolla lobes entire, the tube not more than twice as long as the calyx.

Flowers white, 6 mm. long; nutlets wrinkled or pitted, 2 mm. long.

1. L. arvense.

Flowers yellow, 1 cm. or more long; nutlets smooth, white, 4 mm. long.

Flowers peduncled, corolla tube bearded at the base inside, calyx 3-4 times as long as the nutlets.

2. L. carolinense. Flowers sessile, corolla tube not bearded at the base inside, calyx

twice as long as the nutlets.

3. L. canescens.

Corolla lobes erose-dentate, the tube 2-4 times as long as the calyx.

4. L. linearifolium.

1. Lithospermum arvense L. Gromwell. Sparingly introduced, mostly in the eastern part of the state. Lincoln; Long Pine; St. Paul.

2. Lithospermum carolinense (Walt.) MacM. Hairy Puccoon. Lithospermum gmelini (Michx.) Hitch.

Common in the prairies over most of the state. Anselmo; Antelope; county; Fremont; Grand Island; Sheridan county; Thedford; Weigand.

2. Solanum.

3. Lycium.

4. Datura.

Low prairies in the eastern part of the state. Hoary Puccoon. Plainview; Walton; Weeping Water.

4. Lithospermum linearifolium Goldie. Common on plains and low prairies all over the state. Anselmo; Box Butte county; Fairbury; Lincoln; Perkins county; Pine Ridge; Thedford.

9. Onosmodium, 774.

Plants 4-6 dm. tall; leaves 4-8 cm. long, less than 1.8 cm. wide; nutlets not constricted at the base.

Plants 10-12 dm. tall; leaves 8-10 cm. long, over 1.8 cm. wide; nut-1. O. occidentale. lets with a neck or constriction at the base. 2. O. hispidissimum.

1. Onosmodium occidentale Mackenzie. Western False Gromwell. Common on prairies over most of the state. Beatrice; Broken Bow; Emerson; Kearney county; Lincoln; Sheridan county; Thedford.

2. Onosmodium hispidissimum Mackenzie. In the eastern part of the state. Collected by Hayden near old Council Bluffs.

10. Echium, 776.

Blueweed. 1. Echium vulgare L. Introduced but not common. Bazile Mills; Lancaster county; Nehawka; Plainview.

5. SOLANACEÆ.

Potato Family.

Fruit a berry.

Calyx inclosing the fruit. Calvx inflated and bladder-like in fruit; plant not prickly.

1. Physalis. Calyx not inflated, closely investing the fruit. 2. Solanum.

Calyx not inclosing the fruit. Herbs.

Shruhs. Fruit a large prickly capsule.

1. Physalis. 809.

Ground-cherries.

Leaves tapering to the narrow base.

Base of fruiting calyx sunken; berry red or purple; corolla with

purple dots or purple throat.

Leaves 6-10 cm. long; fruiting calyx 10-angled, finally often filled or burst by the large berry.

Leaves 3-6 cm. long; fruiting calyx 5-angled.

Leaves 3-6 cm. long; fruiting calyx 5-angled.

Base of fruiting calyx not sunken; berry yellow; corolla with a

brown center; leaves generally entire.

Glabrous; leaves narrowly lanceolate. Sparingly hirsute; leaves broader. 2. P. longifolia. 4. P. lanceolata.

Leaves rounded or cordate at the base. Glabrous or nearly so; fruiting calyx large, deeply sunken at the 3. P. macrophysa.

Densely pubescent, more or less viscid.

Leaves longer than wide, with some long, white, jointed, flat

Leaves over 5 cm. long, usually cordate. 6. P. heterophylla. Leaves less than 5 cm. long, scarcely cordate. 7. P. comata. Leaves, some of them, as broad as long; petioles and peduncles 8. P. rotundata. short.

1. Physalis subglabrata Mackenzie and Bush.

In the southeastern part of the state. Nemaha; St. Paul.

2. Physalis longifolia Nutt. Common in low meadows throughout the state. Beatrice; Banner county; Deuel county; Kearney; Newcastle; Republican valley; Springview.

3. Physalis macrophysa Rydb. Along railroad near Lincoln.

4. Physalis lanceolata Michx.
Throughout the state but most common in the western part. Banner county; Crawford; Lincoln; Newark; Pine Ridge; Pishelville; Scotts Bluff county; Scotia; Sioux county; Thedford.

5. Physalis virginiana Mill.

Common in low meadows, mostly in the eastern part of the state. Fairbury: Grand Island: Kearney: Lincoln: Nebraska City: Weeping Water.

6. Physalis heterophylla Nees.

Common over most of the state, growing in edges of woods, thickets or prairies. Broken Bow; Dismal river; Franklin; Frontier county; Kearney: Lincoln: Plummer Ford: Sheridan county: Thedford: Weigand.

7. Physalis comata Rydb.

On hillsides in the western part of the state. Burwell; Loup City; Scotts Bluff county.

8. Physalis rotundata Rydb.

In dry soil in the western part of the state. Burwell; Callaway; Franklin: St. Paul.

2. Solanum, 814.

Plants not prickly; annuals, S. nigrum sometimes perennial.

Leaves sinuately dentate or entire.

Leaves glabrous or nearly so; calyx-lobes obtuse. 1. S. nigrum.

Leaves decidedly strigose beneath; calyx-lobes abruptly acutish.

2. S. interior.

3. S. triflorum.

Leaves pinnatifid. Plants very prickly.

Calvx not enclosing the fruit; flowers white or bluish.

4. S. carolinense. Calyx enclosing the fruit; flowers yellow, one stamen longer than the rest. 5. S. rostratum.

1. Solanum nigrum L. Common Night-shade. A common weed all over the state. Rev. J. M. Bates found a specimen at Red Cloud which appeared to belong here, but was perennial. Dakota county; Fairbury; Lincoln; Mullen; Paddock; Talmage; Republican valley.

2. Solanum interior Rvdb.

On Loup river near Mullen. Thedford.

3. Solanum triflorum Nutt.

Frequent as a weed throughout the state. Banner county; Kearney; Lincoln; Thedford; West Point.

4. Solanum carolinense L. Horse-nettle. In dry soil and waste places in the eastern part of the state. Lincoln; Omaha; Peru; Weeping Water.

5. Solanum rostratum Dunal.

On prairies and in waste places throughout the state. Carns; Crete; Deuel county; Fairbury; Kearney; Lincoln; Saline county; Walton.

3. Lycium. 815.

1. Lycium vulgare (Ait. f.) Dunal.

Escapes from, or rather persists after, cultivation.

Matrimony Vine.

Escapes from, or rather persists after, cultivation.

Beatrice; Callaway; Lincoln; Weeping Water.

4. Datura. 816.

1. Datura stramonium L. Thorn-apple, Jimson-weed. Introduced and rather common in the eastern part of the state. Grand Island; Lincoln; Minden; Peru; Riverton; Tecumseh; Thedford; Valentine; Weeping Water.

GENTIANALES.

Trees with odd-pinnate leaves.

1. Oleaceæ.

Herbs with simple leaves.

Carpels united into a 1-celled ovary, juice not milky.

2. Gentianaceæ.

Carpels 2, separate or nearly so, juice milky.
Without a crown between the corolla and the stamens.

3. Apocynaceæ.

With a 5-lobed or 5-parted crown between the corolla and the stamens; lower umbels often between the leaves, not axillary.

4. Asclepiadaceæ.

1. OLEACEÆ.

Olive Family.

Fraxinus. 724.

Wing of the samara not decurrent on the body.

1. F. americana.

Wing of the samara decurrent on the body for half its length or more.

2. F. campestris.

1. Fraxinus americana L.

Along streams in the southeastern part of the state. Nemaha;
Sarpy county.

2. Fraxinus campestris Britton Green or Field Ash.
Fraxinus lanceolata Borck.
Common along streams throughout the state. Franklin; Lincoln;

Long Pine; Nemaha; Plummer Ford; South Bend.

2. GENTIANACEÆ.

Gentian Family.

Leaves simple, opposite.

Lobes of the corolla 4 times as long as the corolla-tube. 1. Eustoma.

Lobes of the corolla shorter than the corolla-tube.

Leaves trifoliolate, alternate or basal.

2. Gentiana.

3. Menyanthes.

1. Eustoma. 731.

1. Eustoma russellianum (Hook.) Griseb. In low meadows mostly along the Platte river. Alliance; Kearney; Lavaca; Memphis; Scotts Bluff county.

2. Gentiana. 731.

Corolla closed or nearly so, its lobes obsolete. 2. G. andrewsii. Corolla open, its lobes well developed.

Leaves with rough margins, flowers blue.

Leaves with smooth margins, flowers white tinged with green or yellow.

1. G. puberula.

with green or 3. G. flavida.

1. Gentiana puberula Michx. Downy Gentian. On prairies, most common in the eastern part of the state. Crete; Lincoln; Simeon; Utica; Valentine; Weeping Water; Wood Lake.

2. Gentiana andrewsii Griseb. Closed Gentian. In low meadows mostly in the sand-hill regions. Ainsworth; Kearney; Neligh; Newark; Plainview; Thedford; Valentine.

3. Gentiana flavida A. Gray. Yellowish Gentian. Rare along the lower Missouri. Nemaha county.

3. Menyanthes. 736.

1. Menyanthes trifoliata L. Bog or Buck Bean. In marshes, not common. Kennedy; Simeon.

3. APOCYNACEÆ.

Dogbane Family.

1. Apocynum. 738.

Calyx less than half as long as the corolla-tube; flowers over 5 mm. long.

1. A. androsæmifolium.
Calyx about as long as the corolla-tube; flowers less than 5 mm. long.

Leaves narrowed at the base, petioled. 2. A. cannabinum. Leaves of the main stem truncate or subcordate at the base, subsessile. 3. A. hypericifolium.

- 1. Apocynum androsæmifolium L. Dogbane. Mostly in the northwestern part of the state. Belmont; Harrison; Weeping Water.
- 2. Apocynum cannabinum L. Indian Hemp. Common throughout the state. Belmont; Cherry county; Dixon county; Kearney county; Lincoln; Natick; Red Cloud; Talmage; Wymore.
- 3. Apocynum hypericifolium Ait. Common over the whole state. Grand Island; Lincoln; Riverton.

4. ASCLEPIADACEÆ.

Milkweed Family.

Erect or decumbent herbs; corona segments terminating in concave

Corona with an incurved horn in the cavity of each hood.

1. Asclepias.

Corona without horns in the hoods.

Cavity of the hood divided by a crest-like partition; corolla lobes 2. Asclepiodora. spreading. Cavity of the hood not divided by a crest-like partition; corolla

3. Acerates. lobes reflexed. Climbing vines; corona of flat bodies terminating in 2-cleft awns. 4. Gonolobus.

1. Asclepias, 740.

Leaves not linear, lanceolate to nearly orbicular.

1. A. tuberosa. Leaves mostly alternate; sap scarcely milky. Leaves opposite.

Flowers bright red or purple; leaves lanceolate, acuminate.

Flowers greenish, yellowish, white or merely tinged with purple. Leaves narrowed or acute at the apex.

Glabrous or nearly so; follicles not covered with soft

processes.

Corolla segments 10 mm. long or more, hoods longer than 3. A. sullivantii. the incurved horn. Corolla segments less than 10 mm. long, hoods much shorter than the incurved horn. 5. A. amplexicaulis.

Canescent or tomentose, at least on the lower surface of the leaves; follicles covered with soft processes.

Corolla segments 4-8 mm. long, hoods less than 1 cm. 6. A. syriaca. long. Corolla segments 8-12 mm. long; hoods 1 cm. or more long. 7. A. speciosa.

Leaves not narrowed but truncate or emarginate at the apex. Minutely puberulent or glabrous when old.

Densely tomentose-canescent all over.

4. A. latifolia.
8. A. arenaria.

Leaves narrowly linear.

Leaves verticillate; capsule glabrous 5-7 cm. long. 9. A. verticillata. Leaves scattered; capsule puberulent 3-5 cm. long. 10. A. pumila.

Butterfly Weed, Pleurisy Root. 1. Asclepias tuberosa L. On bluffs and prairies in the eastern part of the state. Crete; Dakota county; Douglas county; Franklin; Lincoln; Wahoo; Wymore.

Swamp Milkweed. 2. Asclepias incarnata L. In meadows and swampy places over most of the state. Cherry county; Haigler; Lancaster county; Long Pine; Mullen; Ponca creek;

Sullivant's Milkweed. 3. Asclepias sullivantii Engelm. In low prairies and meadows in the southeastern portion of the state. Lincoln; Talmage; Weeping Water; Wood River.

4. Asclepias latifolia (Torr.) Raf. In dry places in the southwestern part of the state. Haigler. 5. Asclepias amplexicaulis J. E. Smith.

Wooded bluffs and fields in the southeastern part of the state. Weeping Water.

- Common Milkweed. 6. Asclepias syriaca L. A common weed in fields and prairies all over the state. Ainsworth; Anselmo; Crete; Lincoln; Peru; St. Paul; Tecumseh; Weeping Water; Wymore.
- 7. Asclepias speciosa Torr. Showy Milkweed. Fairly common in prairies, especially in the western part of the state. Callaway: Deuel county: Holdrege: Lincoln: Simeon.
- 8. Asclepias arenaria Torr. Sand Milkweed. Common in dry soil in the sand-hills and foot-hills. Cheyenne county; Long Pine; Minden; Plummer Ford; Riverton; Valentine.
- 9. Asclepias verticillata L. Narrow-leaved Milkweed. Common in dry prairies all over the state. Brock; Cherry county; Fairbury; Indianola; Laurel; Lincoln; Niobrara; O'Neill.
- 10. Asclepias pumila (A. Gray) Vail. Low Milkweed. Common in dry prairies, most abundant in the western part of the state. Anselmo; Belmont; Box Butte county; Ft. Niobrara; Haigler; Kearney; McCook; Ponca creek; Thedford.

2. Asclepiodora, 745.

1. Asclepiodora viridis (Walt.) A. Gray.

In the southwestern part of the state, along the Republican river. Red Cloud.

3. Acerates. 745.

Glabrous or puberulent; umbels usually several.

Umbels sessile or subsessile.

Hoods entire at the apex; leaves variable. 1. A. viridiflora. Hoods 3-toothed at the apex; leaves narrowly linear.

2. A. angustifolia.

Umbels distinctly peduncled.

Stems puberulent; leaves 3-13 mm. wide. 3. A. floridana. Stems glabrous; leaves 1-5 mm. wide. Hirsute all over; umbel terminal, solitary.

4. A. auriculata. 5. A. lanuginosa.

- 1. Acerates viridiflora (Raf.) Eaton. Green Milkweed. Common in dry prairies throughout the state. Banner county; Broken Bow; Cherry county; Crete; Cushman; Deuel county; Lincoln; Norway; Plummer Ford; Saunders county; St. James; Valentine; Wahoo.
- 2. Acerates angustifolia (Nutt.) Dec. Common in dry soil all over the state. Cherry county; Cowles; Emerald; Kearney; Lincoln; Plummer Ford; St. James; Sheridan county.
- 3. Acerates floridana (Lam.) Hitch. In dry soil throughout the state. Haigler: Hastings: Lincoln: Saline
- 4. Acerates auriculata Engelm. In dry soil in the western part of the state. Banner county; Deuel county; Lewellen; Minden; Valentine.

5. Acerates lanuginosa (Nutt.) Dec.

Occurs over most of the state, though not abundant. Clearwater; Crete; Lincoln; Minden; Ponca; Thedford.

4. Gonolobus, 746.

Sand Vine. 1. Gonolobus lævis Michx. Rare in the southeastern corner of the state. Nemaha; Rulo.

SCROPHULARIALES.

Flowers regular; fertile stamens 5. (Verbascum.) 1. Scrophulariaceæ. Flowers irregular; fertile stamens 2 to 4.

Leaves green; plant not parasitic. Plants with normal aerial leaves.

Placentæ axile; ovary 1 or 2-celled; capsule not long-beaked. Capsule not elastically dehiscent; calyx lobes if filiform much less than 2 cm. long. 1. Scrophulariaceæ. Capsule elastically dehiscent; calyx segments, in our species, filiform, 2-2.5 cm. long.

5. Acanthaceæ. Placentæ parietal; ovary 1-celled; capsule with 2 curved beaks 5. Acanthaceæ. 2. Martyniaceæ. longer than the body. Plants with floating, finely dissected, bladder-bearing leaves.

4. Lentibulariaceæ. Leaves not green, scaly; plants parasitic. 3. Orobanchaceæ.

1. SCROPHULARIACEÆ.

Figwort Family.

1. Verbascum. Fertile stamens 5; corolla regular, rotate.

Fertile stamens 4 or 2, the fifth if present sterile.

2. Linaria. Corolla spurred at the base.

Corolla not spurred at the base.

Anther-bearing stamens 2, or if four the capsule flattened and emarginate at the apex.

Capsule terete, pointed.

Flowers solitary in the axils.

Flowers vellow or whitish; peduncles with 2 bracts at the 8. Gratiola. summit.

7. Ilysanthes. Flowers purplish; peduncles bractless. 12. Leptandra. Flowers in dense terminal spikes.

Capsule flattened, obcordate or emarginate at the apex.

Corolla 2-lobed or wanting, flowers in dense terminal spikes. 10. Synthyris.

Corolla 4-5-lobed; flowers axillary or in axillary racemes. 11. Veronica.

Anther bearing stamens 4; capsule never flattened or emarginate. Stamens 5, but 1 sterile.

Sterile stamen a mere scale adnate to the corolla.

3. Scrophularia.

Sterile stamen as long or nearly as long as the others. 4. Pentstemon. Stamens 4, all anther-bearing.

Corolla regular or slightly 2-lipped.

Flowers solitary on scape-like peduncles. 9. Limosella.

Flowers axillary, or in terminal, bracted racemes.

Stamens nearly equal; corolla tube short. 13. Afzelia. Stamens very unequal; corolla tube several times as long as the calyx.

14. Gerardia.

Corolla distinctly 2-lipped.

Leaves entire or serrate, never pinnately lobed.

Leaves opposite; flowers axillary, mostly solitary. Calyx tube longer than the teeth, distinctly angled.

5. Mimulus.

Calyx parted, the tube much shorter than the seg-6. Monniera. ments, not angled.

Leaves alternate, flowers spicate.

Upper lip of the corolla much longer than the lower. 15. Castilleja.

Upper lip of the corolla shorter than the lower.

Leaves pinnately lobed or parted.

16. Orthocarpus. 17. Pedicularis.

1. Verbascum, 819.

Mullen. 1. Verbascum thansus L. Introduced in the eastern part of the state, but not common. Brunswick; Holdrege; Lincoln; Oreopolis; Peru; Scotia; Weeping Water.

2. Linaria. 821.

Flowers yellow, 2.5-3 cm. long.

1. L. linaria.

Flowers white or blue, 6-8 mm. long. 2. L. canadensis. 1. Linaria linaria (L.) Karst. Butter-and-eggs, Yellow Toad-flax. Introduced and common locally. Brunswick; Ewing; Lincoln; Min-

den: Red Cloud. 2. Linaria canadensis (L.) Dumont. Reported from Ewing and Oasis.

Blue Toad-flax.

3. Scrophularia, 822.

Corolla dull outside; sterile stamen deep purple; blooms July-Sept.

1. S. marylandica. Corolla shining outside; sterile stamen greenish yellow; blooms May-July. 2. S. leporella.

1. Scrophularia marylandica L.

In the eastern part of the state, not common. Weeping Water.

2. Scrophularia leporella Bickn. Belmont; Red Cloud; Valentine.

4. Pentstemon. 823.

Beard-tongues.

Flowers rarely over 3 cm. long.

Leaves servate or the stems pubescent or puberulent. Corolla white, 1.5-2 cm. long. 2. P. albidus.

Corolla red or purple, 2-2.5 cm. long.

Leaves entire or repand. 1. P. erianthera.

Leaves serrate.

3. P. gracilis.

Leaves entire, whole plant glabrous, often glaucous.

Bracts lanceolate or the lower broader.

Leaves lanceolate.

Flowers 2 cm. long or less. Flowers 2.5 cm. long or more. Leaves all linear or linear-lanceolate.

Bracts ovate, acuminate, large.

Flowers 5 cm. long. Leaves dentate. Leaves entire.

6. P. acuminatus. 7. P. glaber. 8. P. angustifolius. 9. P. havdeni.

4. P. cobæa. 5. P. grandiflorus.

1. Pentstemon erianthera Pursh. In prairies in the western part of the state. Pine Ridge.

2. Pentstemon albidus Nutt. On high prairies and sand-hills mostly in the western part of the state. Antelope county; Anselmo; Box Butte county; Ft. Robinson; Kearney county; St. James; Thedford; Valentine.

3. Pentstemon gracilis Nutt. In wet meadows, often near streams or pools. Cherry county; Deuel county; Pine Ridge; Sioux ocunty; War Bonnet canyon.

4. Pentstemon cobæa Nutt. In dry prairies in the eastern part of the state. Crete; Fairbury; Gage county; Lincoln.

5. Pentstemon grandiflorus Nutt. In dry, sandy places over most of the state. Anselmo; Banner county; Belmont; Cass county; Fairbury; Grand Island; Kearney county; Lincoln; Valentine; Weeping Water.

6. Pentstemon acuminatus Dougl. In dry soil mostly in the western part of the state. Antelope county.

7. Pentstemon glaber Pursh. In moist, sandy soil, mostly in the western part of the state. Alliance; Banner county; Belmont; Harrison.

8. Pentstemon angustifolius Pursh. In dry soil in the northwestern part of the state. Antelope county; Box Butte county; Ft. Robinson; Mullen; Pine Ridge; Thedford; Valentine.

9. Pentstemon haydeni S. Wats. In the sand-hills, in the edge of "blow-outs." Plummer Ford.

5. Mimulus, 827.

Flowers violet-purple, rarely white, leaves lanceolate. 1. M. ringens. Flowers yellow, leaves orbicular or nearly so. 2. M. geyeri.

Monkey-flower. 1. Mimulus ringens L. Banks of streams in the eastern part of the state. Foster; Grand Island; Lincoln; Red Bird creek; Valentine; Wahoo; Walton.

Yellow Monkey-flower. 2. Mimulus geyeri Torr. Common in wet places mostly along the banks of streams throughout the state. Bellevue; Buffalo county; Chelsea; Haigler; New Helena; Niobrara; Scotts Bluff; Thedford; Valentine.

6. Monniera. 828.

1. Monniera rotundifolia Michx.

Water Hyssop.

Bacopa rotundifolia (Michx.) Wettst.
In edges of ponds and streams over most of the state. Cherry county; Fairmont; Lincoln; Mead; Minden; Red Cloud.

7. Ilysanthes. 830.

1. Ilysanthes dubia (L.) Barnhart. Ilysanthes attenuata Small.

False Pimpernel.

In wet places in the eastern part of the state. Guide Rock; Lincoln; Pishelville; Wahoo.

8. Gratiola. 829

1. Gratiola virginiana L. Hedge Hyssop. In wet places over most of the state. Cherry county; Ewing; Kennedy.

9. Limosella. 831.

1. Limosella aquatica L. In wet places along streams. Deuel county.

Mud-weed.

10. Synthyris. 831.

1. Synthyris rubra (Hook.) Benth. In dry soil in the western part of the state. Ft. Robinson.

11. Veronica, 832,

Flowers in axillary racemes.

Leaves mostly sessile, serrulate or entire.

1. V. anagallis-aquatica.
Leaves all petioled, sharply serrate.
2. V. americana.
Flowers in terminal racemes or solitary in the axils.

Flower and pedicel usually longer than the bract. 3. V. serpyllifolia.

Flowers and pedicel usually shorter than the leaf-like bract.

4. V. xalapensis.

- 1. Veronica anagallis-aquatica L. Water Speedwell. In wet places along streams and ditches. Grand Rapids; Kearney; Newark.
- 2. Veronica americana Schwein.

 Common in wet places along streams in the sand-hills. Banner county; Belmont; Chelsea; Dismal river; Hat Creek basin; Thedford; Valentine.
- 3. Veronica serpyllifolia L. Red Cloud.
- 4. Veronica xalapensis H. B. K. Purslane Speedwell. In cultivated soil all over the state. Box Butte county; Lincoln; Minden; Norway; Thedford.

12. Leptandra. 834.

1. Leptandra virginica (L.) Nutt. Culver's-root. In moist woods and meadows in the southeastern part of the state. Nemaha; Peru; Richardson county.

13. Afzelia. 835.

1. Afzelia macrophylla (Nutt.) Kuntze. Seymeria macrophylla Nutt.

Mullen Foxglove.

Shady banks in the southeastern part of the state. Nehawka; Nemaha; Weeping Water.

14. Gerardia (Agalinis). 837.

Leaves linear; flowers distinctly pediceled.

Pedicels not much longer than the calyx; corolla 18-30 mm. long.

1. G. aspera.

Pedicels about as long as the flowers; corolla 1-1.5 cm. long.

2. G. besseyana.

Leaves lanceolate; flowers sessile.

3. G. auriculata.

1. Gerardia aspera Dougl. Gerardia. In meadows and prairies, mostly in the eastern part of the state. Bassett; Brown county; Fairbury; Grand Island; Kennedy; Lincoln; Seward county; Wahoo.

2. Gerardia besseyana Britton.

Gerardia tenuifolia var. macrophylla Benth.

In prairies over most of the state. Banner county; Carns; Grand Island; Greeley; Kennedy; Minden; Plainview; Valentine.

3. Gerardia auriculata Michx.

Reported from the northeastern county of Kansas, and may occur in southeast Nebraska.

15. Castilleja. 839.

1. Castilleja sessiliflora Pursh. Painted-cup. On prairies and hillsides over most of the state. Banner county; Callaway; Deuel county; Norway; Peru; Ponca; Scotia; Thedford; Weeping Water.

16. Orthocarpus. 840.

1. Orthocarpus luteus Nutt.

In prairies in the northwestern part of the state. Belmont; Kimball county; Sioux county; Rushville.

17. Pedicularis. 842.

Upper lip of the corolla short beaked; capsule scarcely longer than the calyx.

1. P. lanceolata.

Upper lip of the corolla not beaked, 2-toothed near the apex; capsule 3 times as long as the calyx.

2. P. canadensis.

1. Pedicularis lanceolata Michx. In wet soil. Bellevue; Boelus; Burwell. Lousewort.

In wet soil. Believue; Boelus; Bur

2. Pedicularis canadensis L.

In woods in the southeastern part of the state. Franklin; Lavaca; Lincoln; Richardson county.

2. MARTYNIACEÆ.

Martynia. 852.

1. Martynia louisiana Mill. Unicorn-plant, Double-claw. In the Republican valley. Franklin; Red Cloud.

3. OROBANCHACEÆ.

Broom-rape Family.

Flowers on peduncles 25 mm. or more long, bractless.

1. Thalesia.
Flowers on short peduncles or sessile, bracted.
2. Orobanche.

1. Thalesia. 849.

Stems very short, mostly subterranean, bearing 1-4 flowers on scapelike peduncles 0.5-2 cm. tall. 1. T. uniflora. Stems erect, 1.5-1 dm. high, 3-15-flowered, peduncles 3-8 cm. long. Corolla purple. 2. T. fasciculata. Corolla yellow. 2a. T. fasciculata lutea.

- I. Thalesia uniflora (L.) Britton. Cancer-root. In woods or thickets, parasitic on other plants, not common. Lincoln; Oakdale.
- 2. Thalesia fasciculata (Nutt.) Britton. In sandy soil, parasitic on the roots of various plants, mostly composites. Alliance; Kennedy; Minden.
- 2a. Thalesia fasciculata var. lutea (Parry) Britton. Western part of state, on grasses. Valentine.

2. Orobanche, 849.

1. Orobanche ludoviciana Nutt.

In the foot-hill region in the western part of the state. Alliance; Atkinson; Banner county; Hat Creek basin; Kennedy; Long Pine; Minden.

4. LENTIBULARIACEÆ.

Bladder-wort Family.

1. Utricularia, 845.

Corolla 12 mm. broad or more, spur nearly as long as the lower lip.

1. U. vulgaris.

Corolla 4-6 mm. broad, spur short or nearly wanting.

2. U. radiata.

Utricularia vulgaris L. Greater Bladder-wort.
 Utricularia macrorhiza LeConte.

 Rather common in streams and ponds over most of the state. Cherry

county; Lincoln; Minden; Thedford; Weigand; Whitman.

2. Utricularia radiata Small. Thedford.

Little Bladder-wort.

5. ACANTHACEÆ.

1. Ruellia. 854.

1. Ruellia ciliosa Pursh. Wild Petunia. In dry soil in the southeastern part of the state. Blue Springs; Lincoln; Nemaha.

LAMIALES.

Fruit 1-seeded; fruiting calyx reflexed.

1. Phrymaceæ. Fruit 2-4-seeded; calyx not reflexed.

Style apical; ovary not 4-lobed; flowers often nearly regular.

2. Verbenaceæ.

Style arising between the lobes of the ovary; flowers mostly irregular.

3. Labiatæ.

1. PHRYMACEÆ.

1. Phryma. 856.

1. Phryma leptostachya L.

Lopseed.

In woods and in thickets throughout the state. Anselmo; Aten; Bellevue; Belmont; Crete; Lincoln; Mullen; Nebraska City; Valentine.

2. VERBENACEÆ.

Vervain Family.

Flowers in elongated spikes, corolla 5-lobed, regular or nearly so.

1. Verbena. 2. Lippia. Flowers in heads or short spikes, corolla 4-lobed, 2-lipped.

1. Verbena, 777.

Bracts short, little if any longer than the calvx; stems erect.

Leaves serrate; bracts mostly shorter than the calyx; flowers 4-10 mm. long.

Fruits scattered; corolla usually white, 2 mm. broad.

1. V. urticifolia.

Fruits imbricated, corolla blue, 3 mm. or more broad.

Plants slightly rough-pubescent; flowers 4-6 mm. long. Spikes numerous; stems 0.5-2 mm. tall. 2. V. hastata. Spikes usually solitary; stems 2-6 dm. high. 3. V. angustifolia. Plants densely soft-pubescent; flowers 8-10 mm. long.

Leaves bipinnately parted; bracts longer than the calvx. 6. V. bipinnatifida. Bracts longer than the flowers; stems often prostrate. 5. V. bracteosa.

- White or Nettle-leaved Vervain. 1. Verbena urticifolia L. In woods and meadows in the eastern part of the state. Callaway; Crete; Franklin; Lincoln; Nebraska City; Pishelville; Valentine; Wymore; Weeping Water.
- Blue Vervain. 2. Verbena hastata L. Common in meadows and low prairies, especially in the eastern part of the state. Banner county; Cherry county; Lincoln; Mullen; Nebraska City; Niobrara; Wymore; Weeping Water.
- 3. Verbena angustifolia Michx. Lincoln.
- Common Vervain. 4. Verbena stricta Vent. Common in dry soil all over the state. Aten; Benkelman; Cherry county; Fairbury; Lincoln; Nebraska City; Red Cloud; Thedford; Walton; Wahoo.
- 5. Verbena bracteosa Michx. Creeping Vervain. A common weed in pastures and waste places over the whole state. Box Butte county; Lincoln; Mead; Nebraska City; St. James; Thedford: Valentine.
- 6. Verbena bipinnatifida Nutt. In dry prairies in the western part of the state. Arapahoe; Broken Bow: Fort Robinson: Indianola: Oxford: Spencer: Whitney.

2. Lippia. 778.

Leaves lanceolate, serrate to below the middle.

Leaves spatulate, 2-6-toothed above the middle.

1. L. lanceolata.
2. L. cuneifolia.

1. Lippia lanceolata Michx.

In wet meadows in the eastern part of the state. Grand Island;
Nemaha: Richardson county.

2. Lippia cuneifolia (Torr.) Steud. In dry places in the western part of the state. Franklin; Kearney county; Phelps county; Republican City.

3. LABIATÆ. (LAMIACEÆ.)

Mint Family.

Anther-bearing stamens 4.

Calyx with a protuberance on the upper side.

3. Scutellaria.
Calyx without a protuberance on the upper side.

Flowers in terminal spikes or capitate clusters. Flowers in terminal spikes.

Corolla distinctly 2-lipped, usually 5-lobed.

Corolla split nearly to the base on the upper side.

Corolla not split nearly to the base on the upper side.

Calyx nearly equally 5-toothed, not 2-lipped.

Flowers in verticillate clusters in the axils of the

bracts.
Upper pair of stamens longer than the lower.

Plants glabrous or slightly pubescent; tall herbs.

5. Agastache.

Plants densely tomentose-canescent. 6. Nepeta.

Lower pair of stamens as long or longer than the upper.

13. Stachys.

Flowers solitary in the axils of the bracts.

10. Dracocephalum.

Calyx distinctly 2-lipped or the upper tooth larger than the others.

Bracts pectinate with awn-pointed teeth. 8. Moldavica. Bracts merely ciliate, broadly ovate-orbicular.

9. Prunella.
Corolla 4-lobed, nearly regular.
20. Mentha.

Corolla 4-lobed, nearly regular.

Flowers in dense capitate clusters.

18. Koellia.
Flowers in clusters in the axils of the leaves, not spicate.

Leaves entire. 2. Isanthus.

Leaves not entire.

Calyx teeth usually 10.

4. Marrubium.

Calyx teeth 5.

Corolla distinctly 2-lipped.

Leaves much longer than broad. 11. Leonurus.

Leaves about as broad as long, in our species. Upper pair of stamens longer than the lower.

7. Glecoma. Upper pair of stamens shorter than the lower.

Corolla nearly regular; leaves lanceolate.

12. Lamium.
20. Mentha.

Anther-bearing stamens 2.

Flowers in terminal spikes or heads.

Flowers in terminal spikes, composed of few-flowered clusters.

14. Salvia.

Flowers in dense bracted glomerules, or these forming interrupted spikes.

Calyx equally 5-toothed. Calyx 2-lipped.

15. Monarda. 16. Blephilia.

Flowers clustered in the axils of the leaves, not spicate.

Calyx 13-nerved, 2-lipped. 17. Hedeoma. Calyx and corolla both nearly regular, 4-5-lobed. 19. Lycopus.

1. Teucrium. 781.

Calyx canescent, at least 2 of the upper lobes obtuse, corolla 15-20 mm. long.

1. T. canadense.
Calyx villous, some of the hairs glandular, upper calyx lobes acute, corolla 8-12 mm. long.

2. T. occidentale.

- 1. Teucrium canadense L. American Germander, Wood Sage. In low ground in the eastern part of the state. Knox county; Lincoln; Nebraska City; Red Cloud; Saunders county.
- 2. Teucrium occidentale A. Gray. Hairy Germander. Common in low, moist ground in the western part of the state. Alliance; Endicott; Grand Rapids; Hooker county; Mead; Scotia; Scotts Bluff county; Valentine; Walton.

2. Isanthus. 782.

1. Isanthus brachiatus (L.) B. S. P.
Along streams in the southeastern part of the state. Cass county.

3. Scutellaria, 783.

Flowers not over 10 mm. long.

Leaves petioled, at least the lower coarsely serrate, mostly over 3 cm. long.

1. S. lateriflora.

Leaves sessile, 1-3 cm. long.

3. S. parvula.

Flowers 12 mm. long or more.

Leaves entire, flowers 12-16 mm. long.

2. S. resinosa.

Leaves, at least the lower, dentate; flowers 25 mm. long.

4. S. galericulata.

- 1. Scutellaria lateriflora L.

 Blue Skullcap.

 In wet, shady places throughout the state. Crete; Guide Rock;
 Kearney; Lincoln; Nebraska City; Ponca creek; Valentine; Wahoo;
 Walton.
- 2. Scutellaria resinosa Torr.
 On dry plains in the western part of the state. Dawes county.
- 3. Scutellaria parvula Michx.

 In moist soil in the southeastern part of the state. Emerson; Lincoln; Nebraska City; Swedeburg; Walton; Weeping Water.
- 4. Scutellaria galericulata L. Marsh Skullcap. Wet banks and edges of pools in the sand-hill regions. Burwell; Kearney; Paddock; Scotts Bluff county; Whitman.

4. Marrubium. 785.

1. Marrubium vulgare L. Wood River.

White Hoarhound.

5. Agastache, 785.

Leaves green on both sides; stems stout; eastern.

Glabrous; corolla greenish-yellow.

Pubescent; corolla purplish.

Leaves pale beneath; stems slender; western.

1. A. nepetoides.
2. A. scrophulariæfolia.
3. A. anethiodora.

1. Agastache nepetoides (L.) Kuntze.

In woods, mostly along streams in the eastern part of the state. Bellevue; Dakota county; Lincoln; Nebraska City; Wahoo; Weeping Water.

2. Agastache scrophulariæfolia (Willd.) Kuntze.

On wooded bluffs of the Missouri, not common. Bellevue; Nebraska City.

3. Agastache anethiodora (Nutt.) Britton. Anise-hyssop. Agastache fœniculum (Pursh) Kuntze.

In dry soil in the northwestern part of the state. Sioux county.

6. Nepeta. 786.

1. Nepeta cataria L. Catnep, Catmint. Common in waste places in the eastern part of the state. Ewing; Grand Island; Lincoln; Minden; Nebraska City; Pishelville; Plainview.

7. Glecoma, 787.

1. Glecoma hederacea L. Ground-ivy. In the northeastern part of the state. Peru; Red Cloud.

8. Moldavica (Dracocephalum). 787.

1. Moldavica moldavica (L.) Britton. Bluffs of the Missouri. Meadville; Springview.

9. Prunella. 788.

1. Prunella vulgaris L. Heal-all. Introduced and rather common in the eastern part of the state. Ainsworth; Albright; Lincoln; Mullen; Nebraska City; Richardson county; Thedford.

10. Dracocephalum (Physostegia). 788.

Corolla 25 mm. long; fruiting calyx 8-10 mm. long.

Corolla 12 mm. long; fruiting calyx 4-6 mm. long.

1. D. virginianum.
D. nuttallii.
1. Dracocephalum virginianum L.
Lion's-heart.
In woods, mostly in the eastern part of the state.
Bellevue; Ewing:

Grand Island; Lincoln.

2. Dracocephalum nuttallii Britton.

In moist soil, not common. Nebraska City; Scottsbluff.

11. Leonurus. 790.

1. Leonurus cardiaca L. Mother-wort. Woods and meadows along streams in the eastern part of the state. Beatrice; Dixon county; Grand Island; Loup City; Nebraska City; Weeping Water.

12. Lamium. 790.

1. Lamium amplexicaule L. Introduced, but rare. Red Cloud.

Henbit.

13. Stachys. 791.

Leaves sessile or very short petioled; calyx teeth more than half the length of the tube.

1. S. palustris.

Leaves, at least the lower, slender petioled; calyx teeth about half as long as the tube.

2. S. aspera.

1. Stachys palustris L. Hedge-nettle. In edges of ponds and in marshy places, mostly in the sand-hills. Ainsworth; Cherry county; Kearney; Nebraska City; Valentine.

2. Stachys aspera Michx. Rough Hedge-nettle. In moist soil in the eastern part of the state. Lincoln; Wahoo.

14. Salvia, 794.

Corolla 25 mm. long, several times as long as the calyx; upper lip of calyx obtuse, 1-2 mm. long; perennial.

1. S. pitcheri.

Corolla about 8 mm. long, not much longer than the calyx; upper lip of calyx acute, 2-3 mm. long; annual.

2. S. lanceifolia.

1. Salvia pitcheri Torr.

Common on prairies in the southeastern part of the state. Crete; Fairbury; Lancaster; Minden; Red Cloud; Wahoo; Weeping Water.

2. Salvia lanceifolia Poir. Salvia lanceolata Willd.

In prairies throughout the state, becoming common as a weed in waste places. Beaver creek; Frontier; Lincoln; Nebraska City; Red Cloud.

15. Monarda. 795.

Flowers in a solitary, terminal cluster; calyx teeth short, erect.

Leaves pubescent beneath, bracts whitish or purplish.

Leaves canescent beneath, bracts usually green.

Flowers in a terminal cluster and also in the upper axils; calyx teeth spreading, nearly half as long as the tube.

3. M. pectinata.

1. Monarda fistulosa L. Wild Bergamot. Common over most of the state. Belmont; Crete; Hat Creek basin; Lincoln; Long Pine; Peru; Valentine; Weeping Water.

2. Monarda mollis L. Common in prairies all over the state. Lincoln; Minden; Mullen; Wahoo.

3. Monarda pectinata Nutt.
In dry prairies in the western part of the state. Belmont; Callaway; Deuel county; Ft. Robinson; Merriman; Thedford.

16. Blephilia. 797.

1. Blephilia hirsuta (Pursh) Torr. In woods in the southeastern part of the state. Lincoln.

17. Hedeoma. 797.

Leaves serrate; upper calyx teeth triangular
Leaves entire; all the calyx teeth subulate.

1. H. pulegioides.

Calyx teeth all about equal in length.

2. H. hispida.

Lower calyx teeth much longer than the upper.

3. H. longiflora.

- 1. Hedeoma pulegioides (L.) Pers. American Pennyroyal. Dry soil in the southeastern part of the state. Arago; Nebraska City.
- 2. Hedeoma hispida Pursh.

 Common in dry soil all over the state. Box Butte county; Broken Bow; Fairmont; Nebraska City; Plainview; Thedford; Valentine; Walton.
- 3. Hedeoma longiflora Rydb. In dry soil in the western part of the state. Banner county; Belmont; Cheyenne county; Lewellen; Valentine.

18. Koellia, 800.

1. Koellia virginiana (L.) MacM. Mountain Mint. In dry fields and thickets throughout the state. Dismal River; Holt county; Long Pine; Newark; Oreopolis; Pishelville; Richardson county; Wood River.

19. Lycopus. 803.

Calyx teeth triangular, in fruit shorter than the nutlets; bracts short.

Corolla lobes erect, stamens and style included. 1. L. virginicus. Corolla lobes spreading, stamens and style exserted. 2. L. uniflorus. Calyx teeth subulate, in fruit longer than the nutlets; bracts some of them as long as the calyx.

Leaves incised or pinnatifid. Leaves sharply serrate. 3. L. americanus. 4. L. asper.

1. M. piperita.

- 1. Lycopus virginicus L.

 Common in wet soil all over the state. Bellevue; Carns; Cody's Lakes; Endicott; Lincoln; Nebraska City; Thedford.
- 2. Lycopus uniflorus Michx.
 In moist soil probably over most of

In moist soil probably over most of the state. Burwell; Long Pine; Loup City; Red Cloud.

- 3. Lycopus americanus Muhl. Water Hoarhound. Common in wet soil, frequently growing along the margins of ponds and streams. Banner county; Cherry county; Cody's Lakes; Endicott; Lincoln; Nebraska City; Paddock; Thedford; Valentine.
- 4. Lycopus asper Greene.

Mostly along sandy banks and margins of pools. Bassett; Burwell; Callaway; Newark; Thedford; Valentine.

20. Mentha, 804.

Flowers in terminal spikes. Flowers in axillary clusters.

Flowers in axillary clusters.

2. M. canadensis.

1. Mentha piperita L.

Peppermint.

Peppermint.

2. Mentha canadensis L. Wild Mint. In wet soil, often forming borders along streams and ponds. Banner county; Cheyenne county; Ft. Robinson; Lincoln; Nebraska City; Paddock; Sioux county; Whitman.

Subclass CALYCIFLORAE

ROSALES.

Flowers, if in dense globose heads, perfect.

Corolla regular, or wanting.

Ovary superior; carpels, if enclosed in the hypanthium, free from it and from each other.

Carpels 2-many.

Fruits achenes or drupelets, ovules few, carpels numerous.

1. Rosaceæ.

Fruits follicles or capsules, ovules numerous, carpels few. 1. Rosaceæ. Shrubs. Herbs.

Carpels 4-5, separate or united only at the base.

3. Crassulaceæ. Carpels 2, or if more united to the top of the ovary. 4. Saxifragaceæ.

Carpel single.

Fruit an achene or drupe; leaves simple.

1. Rosaceæ.

Fruit a legume: leaves compound.

Flowers not in dense heads or spikes, petals imbricated.

2a. Cæsalpiniaceæ.

Flowers in dense heads or spikes, petals valvate, stamens 2b. Mimosaceæ. mostly long exserted. Ovary inferior: carpels united to each other and to the hypanthium.

Fruit a many-seeded berry: shrubs, often spiny; styles 2.

4. Saxifragaceæ. 1. Rosaceæ.

Fruit a pome; trees or shrubs; styles 1-5. Corolla irregular: fruit a legume.

Stamen filaments not united.

Standard enclosed by the wings in the bud; trees, or herbs with nearly regular corolla.

2a. Cæsalpiniaceæ. Standard enclosing the wings in the bud; herbs with typical 2c. Papilionaceæ. pea-like flowers.

2c. Papilionacea Stamen filaments united. Flowers in dense globular heads; monœcious trees; buds enclosed in

5. Platanaceæ. the hollow base of the petioles.

1. ROSACEÆ.

Rose Family.

Carpels 1-2-ovuled, generally one-seeded in fruit, indehiscent.

Carpels free from each other and if enclosed in a receptacular cup free from it.

Carpels numerous, developing into numerous achenes or drupe-

Pistils not enclosed in the receptacle.

Fruits achenes: calyx often with a whorl of bracts, making it appear double.

Styles short, not elongating in fruit, neither jointed nor plumose.

Styles terminal, flowers mostly yellow. 1. Potentilla.

Styles lateral, flowers white. Caulescent: leaves pinnate: receptacle dry.

2. Drymocallis.

Acaulescent; spreading by runners; leaves trifoliolate; receptacle fleshy, edible. 3. Fragaria. Styles elongating in fruit, often plumose and jointed.

Fruits drupelets, aggregated into berry-like clusters; calyx not bracted. 5. Rubus. 9. Rosa.

Pistils enclosed in the receptacular cup or hypanthium. Carpels few, often only one.

Herbs: achenes enclosed in the dry urn-shaped receptacle, Petals none, sepals petaloid, without prickles; flowers in dense heads or spikes, with one carpel. 7. Sanguisorba. Petals yellow, calyx prickly, flowers in racemes, carpels 2.

Trees or shrubs; flowers with one carpel.

Petals none, style persistent, long and plumose; fruit an 6. Cercocarpus.

8. Agrimonia.

Petals present, fruit a drupe. 14. Prunus. Carpels united to each other and to the receptacular cup; fruit a

Inner wall of the ripe carpels bony; ovule one in each carpel, or if 2, dissimilar. 12. Cratægus.

Inner wall of the ripe carpels papery.

Pome 5-6 cm. in diameter, cells as many as the styles, 2seeded.

Pome less than 1 cm. in diameter, cells twice as many as the styles, 1-seeded. 13. Amelanchier. Carpels with several ovules, 2-4-seeded, dehiscent. 10. Opulaster.

1. Potentilla, 502.

Flowers terminal, cymose.

Leaves pinnate.

Leaves white tomentose, especially so beneath.

Leaves glabrous above; stipules pectinately parted.

1. P. pennsylvanica. Leaves silky above; stipules entire or nearly so. 2. P. hippiana. Leaves not white tomentose. 6. P. paradoxa.

Leaves digitate, 3-5-foliolate.

Stamens 10-20.

Plant erect; flowers 6-12 mm. broad. 3. P. monspeliensis. Plant decumbent or ascending; flowers about 4 mm. broad.

5. P. millegrana.

Stamens 5-8. 4. P. pentandra. Flowers solitary on axillary peduncles. 7. P. anserina.

1. Potentilla pennsylvanica L. Prairie Cinquefoil. Common throughout the state. Deuel county; Dismal River; Kennedy; Saunders county; Sheridan county; Thedford; Weeping Water.

2. Potentilla hippiana Lehm. Woolly Cinquefoil. In the northwestern part of the state. Belmont; Ft. Robinson; Harrison.

3. Potentilla monspeliensis L. Rough Cinquefoil. Common, probably over most of the state. Belmont; Cass county; Cherry county; Dakota county; Lincoln; Ponca; Walton; Whitman.

4. Potentilla pentandra Engelm.

Probably over most of the state. Aten; Chadron; Cherry county; Ft. Niobrara; Lincoln; Whitman.

5. Potentilla millegrana Engelm.

Throughout the state. Lincoln; Louisville; Newark; Weeping Water. Bushy Cinquefoil. 7. Potentilla paradoxa Nutt. Probably occurs over most of the state, but not common. Antelope county; Aten; Broken Bow; Cherry county; Lewellen; Lincoln; Omaha; Sioux county; Wood Lake.

8. Potentilla anserina L.

Silver-weed.

Angentina anserina (L.) Rydb. In the northwestern part of the state. Keith county; St. Paul; Scotts Bluff county. (Potentilla bipinnatifida Dougl. and Potentilla platyloba Rydb. occur in Nebraska, according to Rydberg's Flora of Colorado.)

2. Drymocallis. 499.

1. Drymocallis agrimonioides (Pursh) Rydb. In low prairies and meadows throughout the state. Antelope county; Aten; Broken Bow; Cherry county; Lincoln; Sioux county; Valentine.

3. Fragaria. 500.

Achenes sunken in pits on the surface of the ovoid receptacle; fruiting scape shorter than the leaves. 1. F. virginiana. Achenes on the smooth surface of the elongated-conic receptacle; 2. F. americana. fruiting scape longer than the leaves.

1. Fragaria virginiana Duchesne. Wild strawberry. In low prairies, common in the eastern part of the state. Crete; Chadron; Long Pine; Lincoln; Peru; Weeping Water.

2. Fragaria americana (Porter) Britton.

Sides of bluffs and canyons in the western part of the state. Anselmo; Belmont; Hat Creek basin; Plummer Ford; Valentine.

4. Geum. 507.

Petals white or cream-colored, scarcely longer than the sepals.

Plant rough pubescent; petals creamy-white. 1. G. virginianum. Plant finely pubescent or glabrate; petals white. 2. G. canadense. Petals golden-yellow, much exceeding the sepals.

Terminal leaflet of the basal leaves broadly ovate or cuneate; re-

3. G. strictum. ceptacle downy. Terminal leaflet of the basal leaves orbicular or cordate; recepta-4. G. macrophyllum. cle nearly naked.

Rough Avens. 1. Geum virginianum L. In woods in the southeastern part of the state. Lincoln; Talmage.

White Avens. 2. Geum canadense Jacq. Common in woods throughout the state. Anselmo; Aten; Lincoln; Neligh; Peru; Saltillo; Sioux county; Talmage; Thomas county; Wahoo.

3. Geum strictum Ait. Yellow Avens. Meadows in the northwestern part of the state. Belmont; Natick; Thedford; Valentine.

4. Geum macrophyllum Willd. Rare in meadows. Natick.

5. Rubus, 493.

Flowers about 1 cm. broad; fruit falling away from the receptacle at maturity.

Stems bristly, without prickles; fruit red. 1. R. strigosus.

Stems not bristly, armed with prickles; fruit purple-black.

2. R. occidentalis. Flowers mostly 2 cm. broad or more; fruits persistent on the fleshy receptacle.
3. R. nigrobaccus.

Rubus strigosus Michx. Wild Red Raspberry.
 In thickets throughout the state, not common. Anselmo; Lincoln;
 Peru; Thomas county; Weeping Water.

2. Rubus occidentalis L. Wild Black Raspberry. Mostly in thickets and open woods along streams. Crete; Newcastle: Peru: Plummer Ford; Red Cloud; Valentine.

3. Rubus nigrobaccus Bailey. Rubus allegheniensis Porter. Blackberry.

Borders of woods in the southeastern part of the state. Lincoln; Nemaha; Talmage.

6. Cercocarpus. 509.

1. Cercocarpus montanus Raf. Mountain Mahogany. Cercocarpus parvifolius Nutt.

On dry hills in the northwestern part of the state. Banner county; Scotts Bluff county.

7. Sanguisorba. 512.

 Sanguisorba sanguisorba (L.) Britton. Sanguisorba minor Scop. Escapes from cultivation. Lincoln. Burnet.

8. Agrimonia. 511.

Larger leaflets 5-7.
Stem hirsute.
Stems glabrous or nearly so.
Larger leaflets 9-19.

1. Agrimonia gryposepala Wallr. Boelus; Grand Island; Valentine.

1. A. gryposepala.
2. A. striata.
3. A. parviflora.
Hairy Agrimony.

2. Agrimonia striata Michx.

In woods throughout the state. Banner county; Bellevue; Belmont; Dukeville; Hooker county; Indianola; Lincoln; Long Pine; Sioux county.

3. Agrimonia parviflora Soland.

In the southeastern part of the state. Endicott; Fairbury.

9. Rosa, 512.

Styles distinct; leaflets usually 5-9; calyx persistent on the fruit.

Infrastipular spines wanting; stems densely armed with prickles.
Flowers usually several, about 5 cm. broad.
Flower solitary, terminal, 6-7 cm. broad.
Infrastipular spines present; stems less densely armed or naked above.
Styles united; stems climbing or trailing; leaflets usually 3; calyx deciduous.

4. R. setigera.

1. Rosa pratincola Greene. Rosa arkansana Porter. Prairie Rose.

Common on prairies throughout the state. Anselmo; Antelope county; Broken Bow; Cherry county; Frontier county; Laurel; Lincoln: Ponca.

2. Rosa acicularis Lindl. Prickly Rose. Rare in the northwestern part of the state. Long Pine; Sowbelly canyon.

3. Rosa woodsii Lindl.

Prairies in the northwestern part of the state. Belmont; Cheyenne county; Deuel county; Hat Creek basin; Indianola; Red Cloud; Sheridan county; Scotts Bluff county; Valentine; Wood Lake.

4. Rosa setigera Michx. Climbing Rose. Woods and thickets in the southeastern part of the state. Nemaha; Richardson county; Weeping Water.

10. Opulaster. 491.

1. Opulaster opulifolius (L.) Kuntze. Ninebark. In thickets near streams in the northeastern part of the state. Carns; Long Pine.

11. Malus. 516.

1. Malus ioensis (Wood) Britton. Western Crab Apple. In woods mostly along the Missouri River. Ainsworth; Nemaha; Paddock; Peru.

12. Cratægus. 518.

Hawthorns.

Leaves with a broad truncate or cordate base; flowers 1.5-3 cm. broad.

1. C. mollis.

Leaves with a narrow or cuneate base; flowers 10-16 mm. broad.

Leaves glabrous, or nearly so, beneath.

Leaves pubescent, especially along the veins beneath.

3. C. calpodendron.

1. Cratægus mollis (T. & G.) Scheele. In woods in the southeastern part of the state. Bellevue; Lincoln; Nemaha; Saltillo.

2. Cratægus succulenta Schrader. Cratægus occidentalis Britton.

River banks in western Nebraska. Custer county; Grand Rapids; Halsey; Hooper county; Kirkwood; Valentine.

3. Cratægus calpodendron (Ehrh.) Medic.

Cratægus tomentosa L.

In woods along streams in the eastern part of the state. Jamaica; Omaha; Peru.

13. Amelanchier, 517.

Leaves serrate nearly to the base.

Leaves dentate above the middle only.

1. A. canadensis.
2. A. alnifolia.

1. Amelanchier canadensis (L.) Medic. June or Service Berry. Along streams in the northeastern part of the state. Ft. Niobrara; Ft. Robinson; Grand Island; Johnstown; Long Pine; Nebraska City; Nemaha; Peru; South Bend; Valentine; Wahoo; Weeping Water.

2. Amelanchier alnifolia Nutt. Western June Berry. Dry soil in the northwestern part of the state. Banner county; Belmont; Merriman; Simeon; Sioux county; Valentine.

14. Prunus, 523.

Flowers in small few-flowered umbels, appearing with or before the leaves.

Thorny shrub or small tree, over 1 m. high; fruit red or yellow, 2 cm. or more in diameter.

1. P. americana.
Thornless shrub, 2-5 dm. high; fruit black.
2. P. besseyi.
Flowers in many-flowered racemes at the ends of leafy branches of

the season.

Shrubs or small trees; leaves with spreading teeth.

Fruit very astringent, red to nearly black, 8-10 mm. in diameter; eastern.

3. P. virginiana.

Fruit sweet or but slightly astringent, dark-purple to black, 6-8 mm. in diameter; leaves with two dark glands at the base; western.

4. P. melanocarpa.

Large trees; leaves with incurved teeth; southeastern. 5. P. serotina.

1. Prunus americana Marsh. Wild Plum. Common all over the state. Dismal River; Lancaster; Peru; Thedford; Valentine; Wahoo.

- 2. Prunus besseyi Bailey.

 Common in sandy soil in the northern and western parts of the state. Antelope county; Banner county; Cherry county; Deuel county; Hat Creek basin; Pierce; Sheridan county; Thedford; Weigand.
- 3. Prunus virginiana L. Choke-cherry. Along streams in the southeastern part of the state. Crete; Lancaster county; Peru; Valentine; Weeping Water.

4. Prunus melanocarpa (A. Nels.) Rydb. Western Choke-cherry. Prunus demissa (Nutt.) Walp.

In prairies and dry soil throughout the northern and western parts of the state. Belmont; Hastings; Long Pine; Thedford; Valentine; Wahoo.

5. Prunus serotina Ehrh. Wild Black Cherry. Rare in woods in the southeastern part of the state. Nemaha; Peru; Weeping Water.

2. LEGUMINOSÆ.

Pea Family.

2a. Subfamily CÆSALPINIACEÆ.

Leaves once or twice pinnate.

Our species herbs; leaves pinnate. Trees; leaves twice-pinnate.

1. Cassia.

Usually thorny, leaflets 1-3 cm. long; flowers perfect. 2. Gleditsia. Thornless; leaflets 5-7 cm. long; diœcious. 3. Gymnocladus. Leaves simple, heart-shaped; small trees. 4. Cercis.

1. Cassia, 529.

Leaflets 20-30; stipules persistent. Leaflets 12-18; stipules caducous.

C. chamæcrista.
 C. marylandica.

1. Cassia chamæcrista L. Partridge Pea. Common in eastern Nebraska. Ewing; Guide Rock; Lincoln; Red Cloud; Richardson county; Wahoo.

2. Cassia marylandica L. Wild Senna. Rare in the southeastern part of the state. Guide Rock: Red Cloud.

2. Gleditsia, 530.

Honey Locust. 1. Gleditsia triacanthos L. In rich soil in the eastern part of the state. Lancaster county.

3. Gymnocladus, 531.

1. Gymnocladus dioica (L.) Koch. Kentucky Coffee-tree. On alluvial soil in the southeastern part of the state and along the Missouri as far north as Cedar county. Louisville; Nemaha City; Rulo; Saltillo; West Point.

4. Cercis. 529.

Red-bud. Judas-tree. 1. Cercis canadensis L. Common in woods along streams in the southeastern part of the state. Bellevue; Nemaha City; Peru; Rulo; Weeping Water; Wymore.

2b. Subfamily MIMOSACEÆ.

Stems and legumes smooth; petals not united. Stems armed with recurved prickles: legumes prickly; corolla gamo-2. Morongia. petalous.

1. Acuan. 527.

Illinois Mimosa. 1. Acuan illinoensis (Michx.) Kuntze. Common in the eastern part of the state. Callaway; Kearney; Lincoln; Niobrara; Newark; Red Cloud.

2. Morongia, 528.

Sensitive Brier. 1. Morongia uncinata (Willd.) Britton, Prairies and hillsides in the eastern part of the state. Adams county; Fairbury; Gosper county; Grand Island; Niobrara; Red Cloud; Verdigre.

2c. Subfamily PAPILIONACEÆ.

Stamens not united by their filaments.

Leaves pinnate, leaflets 7-25.

1. Sophora.

Leaves simple or trifoliolate.
Pods 7-10 cm. long, flat; foliage not blackening in drying.

Pods 1-5 cm. long, inflated; foliage blackening in drying. 3. Baptisia.

Stamens united by their filaments into one or two groups.

A. Leaves simple, lanceolate to oval; anthers of two kinds. (See also Phaca and Homalobus which often have simple leaves.) 5. Crotalaria.

B. Leaves trifoliolate.

Herbs not climbing.

Pod not a loment, i. e., not breaking into joints when mature.

Flowers solitary on axillary peduncles, 18-25 mm. long.

9. Hosackia.

Flowers clustered or if solitary sessile. Leaflets dentate. Pods not curved or coiled. Flowers in heads or dense spikes; pod included in the calvx. 6. Trifolium. Flowers in elongated racemes, 5-15 cm. long; pod longer than the calyx. 7. Melilotus. Pods curved or coiled. 8. Medicago. Leaflets entire. Acaulescent, or the short stem covered with scarious stipules. 15. Orophaca. Caulescent herbs; pods one-seeded, indehiscent. Foliage glandular dotted. 18. Psoralea. Foliage not glandular dotted. 26. Lespedesa. Pod a loment, constricted between the seeds and breaking into one-seeded joints. 25. Meibomia. Vines. (Apios is sometimes trifoliolate.) Style bearded; flowers all alike; pods linear. 23. Strophostyles. Style not bearded; some of the flowers apetalous. 24. Falcata. C. Leaves digitately 5-15 foliolate. Pods with several seeds, dehiscent. 4. Lupinus. Pods one-seeded, indehiscent. 18. Psoralea. D. Leaves odd-pinnate, 5-many foliolate, (often only 1-3 leaflets in Phaca and Homalobus.) Trees or shrubs; flowers with 5 petals. 10. Robinia. Shrubs; flowers with but one petal, the keel and wings wanting. 19. Amorpha. Vines: sometimes trifoliolate. 22. Apios. Herbs not climbing. Flowers in terminal spikes, heads or racemes. Pods 1-2-seeded, included in the calyx; wing and keel petals united to the stamen tube by their claws. Stamens 9-10, petals united to stamen tube only at its base. 20. Parosela. Stamens 5, petals united to stamen tube for its whole length. 21. Petalostemum. Pods elongated, exserted; seeds several; petals not united to the stamen tube. 11. Cracca. Flowers on axillary peduncles; pods short, sometimes inflated. Pods smooth; herbage not glandular punctate. Keel of the corolla blunt. Pod not flattened, one or both sutures intruded, making pods two-celled or cordate in cross section (round in some species). 16. Astragalus. Pods, one-celled, both sutures prominent externally. Pod inflated, membranous. 14. Phaca. Pods flat; flowers whitish or plant acaulescent. 13. Homalobus. Keel pointed; plants acaulescent; pods in some species nearly two-celled. 12. Oxytropis. Pods prickly; foliage glandular dotted. 17. Glycyrrhiza.

E. Leaves even-pinnate, usually ending in a tendril.

Style flattish, hairy along the upper side, stamen tube truncate.

27. Lathyrus.

Style filiform, hairy only at the tip; stamen tube oblique at the tip. 28. Vicia.

1. Sophora. 534.

1. Sophora sericea Nutt.

Dry prairies mostly in the western part of the state. Cambridge; Cheyenne county; McCook; Minden; Red Cloud; Red Willow county; Wilsonville.

2. Thermopsis. 534.

1. Thermopsis rhombifolia (Nutt.) Richards. False Lupine. In sandy soil in western part of the state. Deuel county; Ft. Robinson; Sioux county; Valentine.

3. Baptisia. 535.

Flowers yellow.

1. B. tinctoria.
Flowers white or cream-colored.

Glabrous; bracts lanceolate, falling before the flowers open.

Villous; bracts ovate, persistent.

2. B. leucantha.
3. B. bracteata.

1. Baptisia tinctoria (L.) R. Br. Reported from Omaha.

2. Baptisia leucantha T. & G. White Wild Indigo. Rare in the southeastern part of the state. Crete; Leshara; Lincoln; Nebraska City; Saline county.

3. Baptisia bracteata Ell. Wild Indigo. Common on prairies in the southeastern part of the state. Beatrice; Crete; Fairbury; Lincoln; Peru; Wahoo.

4. Lupinus. 536.

Perennials, 3-10 dm. high; pubescence silky.

Calyx not spurred at the base.

Leaves glabrous above at least in age; corolla pale blue with a dark spot on the banner.

1. L. plattensis.

Leaves permanently pubescent above; corolla not spotted.

3. L. decumbens.

Calyx spurred at base.

Annuals, 1-3 dm. high; pod 2-seeded.

2. L. argophyllus.
4. L. pusillus.

1. Lupinus plattensis S. Wats.

Prairies in the northwestern part of the state.

Box Butte county; Pine Ridge; Sioux county.

Nebraska Lupine.
Alliance; Belmont;

2. Lupinus argophyllus (A. Gray) Cockerell. In the extreme western part of the state. War Bonnet canyon.

3. Lupinus decumbens Torr.
In prairies in the northwestern corner of the state. Banner county;
Hat Creek canyon; Scotts Bluff county.

4. Lupinus pusillus Pursh.
Prairies in the western part of the state. Crawford; Deuel county;
Lewellen; Lodge Pole.

5. Crotalaria, 536.

1. Crotalaria sagittalis L. Rattle-box. Lowlands along streams in the eastern part of the state. Dakota county; Peru; Walton.

6 Trifolium, 539.

Flowers white or rose-colored, brownish in age, pedicelled.

Calvx teeth twice as long as the tube.

Stem and calyx hairy. 1. T. reflexum. Stem and calyx glabrous or nearly so. Calyx teeth not longer than the tube. 2. T. stoloniferum.

Stems erect or ascending.

Stems creeping, rooting at the nodes. Flowers red or purple, sessile in dense heads. Flowers vellow.

5. T. pratense. 6. T. procumbens. 1. Trifolium reflexum L. Buffalo Clover.

Introduced but not common. Diller: Fairbury; Lincoln.

2. Trifolium stoloniferum Muhl.

Open woods, rare. Lincoln: Louisville.

3. Trifolium repens L. White Clover. Common, escaped from cultivation, probably throughout the state. Lincoln.

4. Trifolium hybridum L. Alsike or Swedish Clover. Often escapes from cultivation. Lincoln.

5. Trifolium pratense L. Red Clover. Frequently escapes from cultivation in the eastern part of the state. Lincoln; O'Neill.

6. Trifolium procumbens L. Lincoln.

Hop-clover.

4. T. hybridum. 3. T. repens.

7. Melilotus, 538.

Flowers white. Flowers yellow.

1. M. alba. 2. M. officinalis. 1. Melilotus alba Desv. White Sweet Clover. Introduced and becoming common throughout the state. Ft. Robinson; Kearney; Lincoln; Paddock; Red Cloud; Thedford; Wymore.

2. Melilotus officinalis (L.) Lam. Yellow Sweet Clover. Introduced throughout most of the state. Lincoln; Long Pine; Plainview; Rushville; Wymore.

8. Medicago, 538.

Flowers yellow; pod 1-seeded; annual.

1. M. lupulina.
Flowers blue or violet; pods several-seeded; perennial.
2. M. sativa.

1. Medicago lupulina L. Yellow Trefoil. Introduced in the eastern part of the state. Its seeds are sometimes mixed with alfalfa seeds. Lincoln; Plainview; Valentine; Wood River.

2. Medicago sativa L. Alfalfa, Lucerne. Extensively cultivated and often escapes. Broken Bow; Red Cloud; Rushville.

9. Hosackia (Lotus). 541.

1. Hosackia americana (Nutt.) Piper. Prairie Trefoil. In dry soil over most of the state. Anselmo; Belmont: Broken Bow; Buffalo county; Cherry county; Fairmont; Hooker county; Lincoln; Mullen; Nelson; Plainview; Red Cloud.

10. Robinia, 549.

Black Locust. 1. Robinia pseudacacia L. Escaped along streams in the southeastern part of the state. Lincoln: Peru.

11. Cracca, 548.

Goat's-rue.

1. Cracca virginiana L. Rare in the southeastern part of the state. Fairbury.

12. Oxytropis (Aragallus). 555.

Scape 2-3 dm. high, many-flowered; pod exserted from the calyx, incompletely 2-celled. 1. O. lambertii. Scape 1-3 cm. long, 1-3 flowered; pod included in the calyx, 1-celled. 2. O. multiceps.

Stemless Loco-weed. 1. Oxytropis lambertii Pursh. Common in the western part of the state; poisonous to stock. Banner county; Belmont; Box Butte county; Culbertson; Emerson; Minden: Pine Ridge: Thedford: Valentine.

2. Oxytropis multiceps Nutt. Rare in the western part of the state. Banner county; Kimball

13. Homalobus, 554.

Flowers in spike-like racemes on axillary or scape-like peduncles. Leaves pinnate, leaflets 11-21; flowers yellowish-white.

1. H. tenellus.

Leaves simple or 3-5 foliate; flowers purple. 3. H. cæspitosus. 2. H. montanus. Flowers clustered in the axils, nearly sessile.

1. Homalobus tenellus (Pursh) Britton.

In dry soil in the western part of the state. Scotts Bluff county; Sioux county.

2. Homalobus montanus (Nutt.) Britton.

Hills and bad-lands of the western part of the state. Belmont: Chevenne county.

3. Homalobus cæspitosus Nutt.

county.

On dry hills and cliffs in the western part of the state. Banner county; Belmont; Harrison.

14. Phaca. 553.

1. Phaca longifolia (Pursh) Nutt. Common in sandy soil in the western part of the state. Banner county; Kennedy; Sioux county; Thedford; Valentine; War Bonnet canvon.

15. Orophaca. 555.

Flowers yellowish, sessile in the axils. Corolla glabrous outside; calyx teeth about half as long as the 1. O. cæspitosa. Corolla pubescent on the outside; calyx teeth nearly as long as

the tube. 2. O. argophylla. Flowers purplish; in peduncled axillary racemes. 3. O. sericea. 1. Orophaca cæspitosa (Nutt.) Britton. Dry hills in the western part of the state. Banner county; Belmont; Ft. Robinson; Kimball county.

2. Orophaca argophylla (Nutt.) Rydb. In dry soil in the western part of the state. Cheyenne county; Deuel county.

3. Orophaca sericea (Nutt.) Britton. In dry, sandy or rocky places in the western part of the state. Alliance; Belmont.

16. Astragalus. 550.

Milk Vetches.

Pods one-celled, one or both sutures intruded in some, but not forming a complete partition.

Pods with two deep grooves on the upper side, stipitate; plants erect; flowers deep purple.
Pods not two-grooved on the upper side. 8. A. bisulcatus.

Flowers purple, violet or blue; pods not cordate in cross section.

Plants low, tufted, silvery canescent.

Stems short: pods straight, circular in cross section.

1. A. missouriensis. Acaulescent; peduncles mostly shorter than the leaves; pods curved. 2. A. shortianus.

Plants with slender, mostly erect stems.

Flowers 6-8 mm. long: pods less than a cm. long.

3. A. gracilis. Flowers larger; pods 15-25 mm. long. 4. A. flexuosus. Flowers yellow or yellowish-white, the keel in some tinged with purple.

Pods not cordate in cross section, sessile in the calyx. Stems 3-6 dm. high; leaflets linear; pods glabrous.

5. A. pectinatus. Nearly acaulescent, pubescent with long white hairs; pods villous-pubescent.

6. A. lotiflorus.

Pods distinctly cordate in cross section, stipitate.

Pods about 2-5 cm. long, almost triangular in cross section. 9. A. racemosus.

Pods about 5 cm. long; calyx dark pubescent.

10. A. drummondii.

11. A. carolinianus.

Pods two-celled, sutures intruded and forming a complete partition. Pods not fleshy, dehiscent.

Flowers yellow; plants erect.

Flowers violet or purple. Stems very short; pods grooved on both sutures, densely villous pubescent.

12. A. mollissimus.

12. A. mollissimus. Stems elongated; pods deeply grooved on the lower suture. Pods finely pubescent. 13. A. adsurgens.

Pods villous with long spreading hairs. 14. A. goniatus. Pods fleshy, indehiscent: plants decumbent.

Pods glabrous.

Flowers violet-purple. Flowers yellowish-white.

15. A. crassicarous. 16. A. mexicanus. Pods pubescent; flowers yellowish-white. 17. A. plattensis.

1. Astragalus missouriensis Nutt. In the western and central parts of the state. Alliance: Frontier county; Ft. Robinson.

2. Astragalus shortianus Nutt. In dry soil in the western part of the state. Cherry county; Franklin; Red Cloud: Valentine.

3. Astragalus gracilis Nutt. Dry prairies in the western and central parts of the state. Alliance; Broken Bow; Chadron: Deuel county; Ft. Robinson; Frontier county; Haigler; Pine Ridge; Red Willow county; Sioux county.

4. Astragalus flexuosus (Hook.) Dougl. Dry soil in the western part of the state. Lewellen.

5. Astragalus pectinatus (Hook.) Dougl. Ctenophyllum pectinatum (Hook.) Rydb. Rare in the western part of the state. Scotts Bluff county.

6. Astragalus lotiflorus Hook. Prairies in the western and central parts of the state. Culbertson; Deuel county; Hooker county; Kenesaw; Thedford; Valentine.

7. Astragalus nebraskensis Bates. In the western part of the state. Perhaps only a form of the above species. Ainsworth; Callaway; Clay county; Long Pine; Naponee; Red Cloud.

8. Astragalus bisulcatus (Hook.) A. Gray. Rare in the western part of the state. Poisonous to stock. Dakota Junction.

9. Astragalus racemosus Pursh. In the northwestern part of the state. Dakota Junction.

10. Astragalus drummondii Dougl. In the northwestern part of the state, Belmont; Dakota Junction; Harrison.

11. Astragalus carolinianus L. Astragalus canadensis L.

Common throughout the state. Indianola; Hooker county; Laurel; Lincoln; Newark; Niobrara.

Woolly Loco-weed. 12. Astragalus mollissimus Torr. Prairies in the western and central parts of the state. Poisonous to stock. Alliance; Box Butte county; Cambridge; Culbertson; Kearney; Minden; Red Willow county; Republican City.

13. Astragalus adsurgens Pall. Common on prairies in the western part of the state. Belmont; Box Butte county; Deuel county; Long Pine.

14. Astragalus goniatus Nutt. In the western part of the state. Bassett; Crawford; Gordon.

Ground Plum, Buffalo Pea. 15. Astragalus crassicarpus Nutt. Astragalus caryccarpus Ker.

Common on prairies all over the state. Belmont; Crete; Fairbury; Lincoln; Minden; Plainview; Red Cloud; Valentine; Weeping Water. 16. Astragalus mexicanus A. DC.

Reported from the northwestern part of the state.

17. Astragalus plattensis Nutt. In the western and central parts of the state. Belmont; Burwell; Callaway; Chadron; Fairbury; Ft. Robinson; Hastings; Lincoln; Neligh.

17. Glycyrrhiza. 557.

1. Glycyrrhiza lepidota Pursh. Wild Licorice. Common on the prairies all over the state. Cherry county; Hooker county; Lancaster county; Newcastle; Sioux county; Thedford; Valentine.

18. Psoralea, 542.

Leaves mostly 5-foliolate, some of the upper sometimes 3-foliolate;

flowers mostly 1 cm. or more long.

Petioles much longer than the leaflets, the lower 2-4 times as long. Stems 1-4 dm. high, spikes 3.5-8 cm. long.

1. P. esculenta. Stems hardly rising above the ground, spikes not over 2.5 cm. long. 2. P. hypogæa.

Petioles little if any longer than the leaflets.

Flowers in loose spikes, 3-4 mm. long. 4. P. digitata.

Flowers sessile in dense heads, stipules 5-15 mm. long.

Calyx lobes nearly equal, all much shorter than the corolla. 3. P. cuspidata. Calvx lobes very unequal, the lower 1 cm. long, longer than

the corolla. 5. P. argophylla. Leaves mostly 3-foliolate, the lower sometimes 5-foliolate; flower 4-9 mm. long.

Peduncles longer than the leaves, mostly several times as long.

Leaflets not linear.

6. P. collina. Flowers sessile on the peduncles.

Flowers stalked on the peduncles.

Flowers few, 1-2 to each bract, 4-5 mm. long.

7. P. tenuiflora.

Flowers many, 2-3 to each bract, 5-7 mm. long.
8. P. floribunda.
flets linear, 2-4 mm. wide.
9. P. linearifolia. Leaflets linear, 2-4 mm. wide. Peduncles about as long as the leaves; spikes few-flowered.

10. P. lanceolata.

- 1. Psoralea esculenta Pursh. Prairie Potato or Bread-root. In high prairies throughout the state. Atkinson; Beatrice; Fairbury; Gordon; Holdrege; Ponca; Red Cloud; Sheridan county; Sioux county; Thedford; Valentine.
- 2. Psoralea hypogæa Nutt. Rare in the western part of the state. Alliance; Deuel county.
- 3. Psoralea cuspidata Pursh. On dry bluffs and prairies, probably throughout the western part of the state. Dakota Junction; Grand Rapids; Valentine.
- 4. Psoralea digitata Nutt. Common on prairies in the sand-hill regions. Anselmo; Grand Island; Kearney; Long Pine; Norway; Phelps county; Sargent; Sheridan county; Weigand.
- 5. Psoralea argophylla Pursh. Common on prairies throughout the state. Belmont; Box Butte county; Haigler; Lincoln; St. James; Sioux county; Thedford; Wahoo.

6. Psoralea collina Rydb.
On hillsides in the northwestern part of the state. Chadron; Ft. Robinson; Scotts Bluff county.

7. Psoralea tenuiflora Pursh.

Common on hills and table-lands in the western part of the state.

Deuel county; Fairbury; Franklin; Ft. Robinson; Lincoln; Phelps county; Talmage.

8. Psoralea floribunda Nutt.

Psoralea tenuiflora var. floribunda (Nutt.) Rydb. In valleys, most common in the eastern part of the state. Minden.

9. Psoralea linearifolia Torr. & Gray. Rare in the western part of the state. Buffalo county; Deuel county.

10. Psoralea lanceolata Pursh.

Common in sandy soil in the central and western part of the state.

Belmont; Haigler; Kearney county; Mullen; Riverton; Rock county;

Sheridan county; Sioux county; Thomas county.

19. Amorpha. 545.

Plants 2-5 m. high; leaflets 1.5-3 cm. long.

1. A. fruticosa.
Plants 1 m. or less high; leaflets not more than 1 cm. long.

Grayish-canescent; leaflets about 1 cm. long; spikes several, clustered.

2. A. canescens.
Glabrous; foliage bright green, leaflets 5-7 mm. long; spike usually

Glabrous; foliage bright green, leanets 5-7 mm. long, space distants solitary, terminal.

3. A. nana.

1. Amorpha fruticosa L. False Indigo. Common along streams throughout the state. Fairbury; Indianola; Kearney; Lincoln; Ponca; Red Cloud; Thedford; Walton.

2. Amorpha canescens Pursh. Shoe-strings, Lead-plant. Common on dry prairies throughout the state. Anselmo; Aten; Lincoln; Sheridan county; Talmage; Thedford.

3. Amorpha nana Nutt.

Amorpha microphylla Pursh.

Dwarf False Indigo.

On the bluffs of the Missouri in northeastern Nebraska. Aten; Butte.

20. Parosela (Dalea). 545.

Glabrous; spikes usually several; flowers white or pink.

Spike long, 5-13 cm., flowers distant; leaflets 5-11.

Spikes short. 2-5 cm., dense; leaflets 15-41.

Pubescent; spike solitary, ovoid or globose; flowers yellow.

3. P. aurea.

1. Parosela enneandra (Nutt,) Britton.
Rather common in the western part of the state. Broken Bow;
Callaway; Deuely county; Hastings; Kearney; Minden; Niobrara;
Phelps county; Red Cloud.

2. Parosela dalea (L.) Britton.

Dalea alopecuroides Willd. Common on prairies in the eastern and central parts of the state. Atkinson; Bellevue; Franklin; Kearney; Keyapaha county; Republican City; Saunders county; Seward.

3. Parosela aurea (Nutt.) Britton.
Dry, gravelly soil mostly in the northern part of the state. Deuel

county; Franklin; Long Pine; Niobrara; Scotts Bluff county; Valen-

21. Petalostemum (Kuhnistera), 546.

Densely villous or silky-pubescent all over; leaflets 9-17. 1. P. villosum. Glabrous or nearly so: leaflets 3-9.

2. P. purpureum.

Flowers purple; leaflets 3-5. Flowers white; leaflets 3-9. Calyx densely silky-villose. Calyx glabrous or nearly so.

3. P. compactum.

Leaflets lanceolate or oblong 15-25 mm. long. 4. P. candidum. Leaflets linear or nearly so, mostly less than 20 mm. long, 3-4 mm. wide.

5. P. oligophyllum.

1. Petalostemum villosum Nutt. Hairy Prairie-clover. In dry soil, common in the sand-hills. Foster; Kearney; Mullen; Pishelville; Royal; Thedford; Valentine; Valley Junction.

2. Petalostemum purpureum (Vent.) Rydb. Purple Prairie-clover. Common in prairies throughout the state. Brown county; Dannebrog; Deuel county; Kearney; Lincoln; Plummer Ford; Sioux county; Weigand.

3. Petalostemum compactum (Spreng.) Swezey.

Rare in the western part of the state. Scotts Bluff county.

4. Petalostemum candidum (Willd.) Michx. White Prairie-clover. Common in rich soil in the eastern and central parts of the state. Crawford; Brown county; Fairbury; Haigler; Kearney; Lincoln; Niobrara.

5. Petalostemum oligophyllum Torr.

Common in sandy places in the central and western parts of the state. Ashton; Callaway; Sioux county.

22. Apios (Glycine). 569.

1. Apics tuberosa Moench. Apics apics (L.) MacM.

Ground-nut.

Common in rich soil in the eastern part of the state and extending along streams farther west. Keyapaha county; Peru; Platte River; Plummer Ford: Valentine.

23. Strophostyles. 571.

Leaflets broadly ovate, often lobed; pods slightly pubescent.

1. S. helvola. Leaflets lanceolate, or linear oblong, entire; pods very pubescent.

2. S. pauciflora. 1. Strophostyles helvola (L.) Britton. Trailing Wild Bean. In sandy soil in the eastern part of the state. Guide Rock; Lincoln;

Neligh; Paddock; Pauline; Red Cloud; Seward.

2. Strophostyles pauciflora (Benth.) S. Wats. Small Wild Bean. In sandy soil along streams throughout the state. Atkinson; Big Sandy creek; Dismal River; Elgin; Hastings; Kearney; Lincoln; Nelson; Wahoo.

24. Falcata, 569.

Bracts rhombic-oval, shorter than the pedicels; calyx of the perfect flowers 3-4 mm. long. 1. F. comosa.

Bracts nearly orbicular, large, generally as long as the pedicels or longer; calyx of the fertile nowers 5-6 mm. long. 2. F. pitcheri.

1. Falcata comosa (L.) Kuntze.

In moist thickets in the eastern part of the state. Beaver creek;
Franklin; Halsey; Lincoln; Peru; St. Paul; Weeping Water.

2. Falcata pitcheri (T. & G.) Kuntze. Common in woods and thickets in the central and eastern parts of the state. Ashland; Endicott; Halsey; Red Cloud; Wahoo.

25. Meibomia (Desmodium). 559.

Tick-trefoils.

Leaves crowded at the top of the stem; panicle terminal; pods on a stipe much longer than the calyx lobes.

1. M. grandiflora.

Leaves scattered along the stem; stipe, if present, shorter than the calyx lobes.

Petioles about as long as the lateral leaflets; stipules ovate, per-

sistent.

Joints of the pod longer than wide, about 12 mm. long.

2. M. canescens.

Joints of the pod not longer than wide, about 6 mm. wide.
3. M. illinoensis.

Petioles not more than half as long as the lateral leaflets; stipules lanceolate or subulate.

Flowers 10-15 mm. long; stipules linear-lanceolate, persistent.
4. M. canadensis.

Flowers 6-8 mm. long; stipules subulate, deciduous.

Stems pubescent; leaflets not over 7.5 cm. long. 5. M. dillenii.

Stems glabrous, or nearly so; leaflets over 7.5 cm. long.

6. M. paniculata.

- 1. Meibomia grandiflora (Walt.) Kuntze. In rich soil in woods in the eastern part of the state. Crete; Endicott; Fremont island; Lincoln; Niobrara; Weeping Water.
- 2. Meibomia canescens (L.) Kuntze.
 In woods and thickets in the eastern part of the state. Beaver creek; Lincoln; Omaha; Wabash; Weeping Water.

3. Meibomia illinoensis (A. Gray) Kuntze.
Dry prairies in the eastern part of the state. Lincoln; Walton.

4. Meibomia canadensis (L.) Kuntze. Common in the eastern part of the state and along streams in the western part. Chelsea; Guide Rock; Kearney; Lincoln; Mullen; Omaha; St. Paul; Talmage.

5. Meibomia dillenii (Darl.) Kuntze. In the southeastern part of the state. Weeping Water.

6. Meibomia paniculata (L.) Kuntze. Wooded bluffs in the southeastern part of the state. Nemaha; Richardson county; Washington county.

26. Lespedeza. 562.

1. Lespedeza capitata Michx.

Common on prairies in the eastern and central parts of the state.

Ainsworth; Halsey; Kearney; Laurel; Lincoln; Republican City.

27. Lathyrus. 567.

Flowers purple.

Glabrous or somewhat pubescent when young; flowers 2-2.5 cm.
long.
1. L. ornatus.

Grayish-pubescent all over; flowers less than 2 cm. long.

Flowers yellowish.

1a. L. ornatus incanus. 1b. L. ornatus flavescens.

1. Lathyrus ornatus Nutt. Showy Vetchling. Common throughout the state. Fremont; Ft.Robinson; Grand Island; Long Pine; Shelton.

1a. Lathyrus ornatus var. incanus Smith & Rydberg.

In the western part of the state. Ft. Robinson; Sheridan.

1b. Lathyrus ornatus var. flavescens Rydb.

In sandy soil in the western part of the state. Dodge, Kearney and Cherry counties.

28. Vicia, 565.

Flowers numerous in dense, 1-sided racemes. Flowers 2-9, in loose racemes.

1. V. villosa.

Leaflets elliptic to linear-oblong; stipules toothed.

Stems smooth or nearly so; leaflets elliptical or ovate-oblong.

Stems generally more pubescent; leaflets linear-oblong or cuneate.

2. V. americana.

2a. V. amer. truncata.

Leaflets linear; stipules narrow and less toothed.

2b.V. amer. linearis.

1. Vicia villosa Roth.
Introduced and still rare. Riverton; Tecumseh.

Hairy Vetch.

2. Vicia americana Muhl.

Rich soil in the eastern part of the state. University Place; Weeping Water.

2a. Vicia americana var. truncata (Nutt.) Brewer.

Vicia oregana Nutt.

Along streams, mostly in the eastern part of the state. Gordon; Nebraska City; Peru; Whitney.

2b. Vicia americana var. linearis (Nutt.) S. Wats.

Vicia sparsifolia Nutt.

Dry prairies throughout the state. Antelope county; Callaway; Emerson; Fairbury; Lincoln; Minden; Red Cloud.

3. CRASSULACEÆ.

Carpels distinct to the base or nearly so. Carpels united to the middle or above.

1. Sedum. 2. Penthorum.

1: Sedum. 473.

1. Sedum stenopetalum Pursh.
On dry, stony hills in the northwestern part of the state.
Hat Creek basin; Harrison.

2. Penthorum. 475.

1. Penthorum sedoides L. Ditch Stonecrop. Common on banks, in ditches and in other wet places in the eastern part of the state. Ewing; Grand Island; Lincoln; Newark; Plainview; Red Bird creek; Walton; Wahoo.

4. SAXIFRAGACEÆ.

Saxifrage Family.

Herbs: leaves all basal. Shrubs; stems leafy, often thorny. 1. Heuchera. 2. Ribes.

1. Heuchera, 481.

Alum Root. 1. Heuchera hispida Pursh. Woods and on wooded bluffs; not common. Ashland; Belmont; Long Pine.

2. Ribes, 486.

Stems with spines at the base of the leaf stalks.
Stamens long exserted; berry brown to purple. 1. R. missouriensis. Stamens equaling the corolla, not exserted; berry red to black.

Stems unarmed; leaves three to five-lobed.

Lobes crenate or dentate; flowers white or greenish white.
Racemes many-flowered; flowers pediceled; calyx tube bellshaped; fruit black.

Racemes few-flowered; flowers sessile or short pediceled; calyx tube narrow; fruit brownish.

5. R. inebrians. Lobes few-toothed or entire; flowers bright yellow. 6. R. aureum.

Wild Gooseberry. 1. Ribes missouriensis Nutt. Common in valleys and along streams throughout the most of the state. Guide Rock; Lincoln; Long Pine; Wahoo.

Western Wild Gooseberry. 2. Ribes setosum Lindl. On gravelly hills in the northwestern part of the state. Crawford; Ft. Robinson.

3. Ribes oxycanthoides L. Ribes valicola Greene.

In the northwestern part of the state. Cherry county; Merriman; Newcastle: Sioux county.

Wild Black Currant. 4. Ribes americanum Mill. Ribes floridum L'Her.

Along water courses throughout the state. Antelope county; Arapahoe; Aten; Bellevue; Burwell; Holdrege; Lincoln; Norway; Sioux county.

5. Ribes inebrians Lindl. On dry hills in the northwestern part of the state. Banner county; Belmont; Harrison; Sioux county.

6. Ribes aureum Pursh.

Ribes aureum var. chrysococcum Rydb.
Common on the hillsides in the western and northern parts of the state. Banner county; Belmont; Cherry county; Ft. Robinson; Lincoln; Mullen; New Helena; Scotts Bluff county; Sioux county.

5. PLATANACEÆ.

Plane-tree Family.

1. Platanus. 490.

Button-ball, Plane-tree. 1. Platanus occidentalis L. In low woods in the southeastern part of the state, often planted for a shade tree. Brownville; Peru; Richardson county.

MYRTALES.

Terrestrial plants, or if aquatic the submerged leaves neither whorled nor dissected.

Hypanthium enclosing the ovary but free from it. 1. Lythraceæ.

Hypanthium adhering to the ovary.

Flowers usually with petals; leaves rarely cordate. 2. Onagraceæ Flowers apetalous: leaves broader than long, cordate.

5. Aristolochiaceæ.

Aquatic plants with whorled leaves.

Submerged leaves pinnately dissected. All the leaves entire.

3. Halorrhagidaceæ. 4. Hippuridaceæ.

1. Ammannia.

4. Lythrum.

1. LYTHRACEÆ.

Loosestrife Family.

Hypanthium short, about as long as wide. Leaves, at least the upper, clasping by a broad auricled base.

Leaves not auricled, usually narrowed at the base.

Calyx without accessory teeth in the sinuses; petals none.

2. Didiplis. Calyx 4-toothed with as many accessory teeth in the sinuses; netals 4. small.

3. Rotala. Hypanthium cylindrical, much longer than wide; petals generally 6.

1. Ammannia, 648.

Flowers axillary, sessile or nearly so. 1. A. coccinea. Flowers in axillary cymes, pedicels 1-3 mm. long. 2. A. auriculata.

1. Ammannia coccinea Rottb.

Common in wet places in the southeastern part of the state. Kennedy; Lincoln; Nebraska City; Plainview; Weeping Water.

2. Ammannia auriculata Willd.

Rare in the southeastern part of the state. Fillmore county; Lincoln.

2. Didiplis. 648.

1. Didiplis diandra (Nutt.) Wood. Water-purslane. Rare in the southeastern part of the state. Lincoln.

3. Rotala. 649.

1. Rotala ramosior (L.) Koehne. In wet places, rare. Cherry county; Lincoln.

Tooth-cup.

4. Lythrum, 649.

1. Lythrum alatum Pursh. Loosestrife. Common in wet ground, especially along ponds, streams and ditches. Anselmo; Callaway; Endicott; Laurel; Lincoln; Mead; Nebraska City; New Helena; Plummer Ford; Ponca; Valentine.

2. ONAGRACEÆ.

Evening-primrose Family.

Calyx persistent; hypanthium not prolonged beyond the ovary. Leaves opposite; stems procumbent or floating. 1. Isnardia.

Leaves alternate; stems erect or ascending. 2. Ludwigia. Calyx deciduous; hypanthium usually prolonged beyond the ovary. Seeds with a tuft of hairs; calyx tube little, if at all, prolonged

beyond the ovary.

3. Chamænerion. Flowers over 15 mm. broad; petals entire. Flowers less than 15 mm, broad or the petals notched at the 4. Epilobium. Seeds without a tuft of hairs; calyx tube distinctly prolonged be-

yond the ovary.

Caulescent plants; flowers axillary or spicate.

Ovules and seeds usually numerous, more than four; fruit a dehiscent capsule.

Stigma four-toothed or four-lobed.

Stigma deeply cleft into 4 linear lobes.

Capsule not broadly winged. 5. Œnothera. Flowers yellow, nocturnal.

Flowers white or pink, mostly diurnal.

Capsule not narrowed into a curved beak; leaves

mostly over 25 mm. long.

Ovules in one row in each cavity of the ovary, 6: Anogra. ascending. Ovules in many rows in each cavity of the ovary, 7. Hartmannia.

on slender stalks. Capsule narrowed into a curved beak, leaves 8-15 mm, long 10. Gaurella.

mm. long Capsule broadly winged; calyx tube 4-12 times as long 11. Megapterium. as the ovary.

Stigma merely 4-toothed; calyx tube shorter than the 13. Meriolix.

Stigma capitate; calyx tube longer than the ovary.

12. Galpinsia.

Ovules and seeds few, 1-4; fruit indehiscent. Petals 4; stamens usually 8; fruit not bristly with hooked

Ovary 4-celled; leaves denticulate to sinuate-toothed.

14. Gaura. 15. Stenosiphon. Ovary 1-celled; leaves entire. Petals 2; stamens 2; fruit bristly with hooked hairs.

16. Circæa.

Acaulescent plants, rarely producing short stems; flowers basal,

Angles of the capsule tuberculate; seed furrowed.

8. Pachylophus. Angles of the capsule winged, smooth; seeds with a tubercle 9. Lavauxia. near one end.

1. Isnardia, 652.

Marsh Purslane. In swampy or boggy places in various localities in the state, forms a carpet-like covering over the mud. Grand Island; Louisville; Minden; Turner; Wood River.

2. Ludwigia. 653.

Flowers sessile, about 3 mm. broad; petals minute, greenish. 1. L. polycarpa. Flowers short peduncled, 12-16 mm. broad; petals large, bright yel-2. L. alternifolia.

1. Ludwigia polycarpa Short & Peter. False Loosestrife. In swampy places, mostly in the eastern part of the state. Ainsworth; Lincoln.

2. Ludwigia alternifolia L.

In swampy places in the southeastern part of the state. Endicott.

3. Chamænerion. 655.

1. Chamænerion angustifolium (L.) Scop. Fire-weed In the northwestern part of the state, not abundant.

4. Epilobium, 655.

· Willow-herbs.

Leaves entire or nearly so, linear or linear-lanceolate. 1. E. lineare. Leaves serrate, lanceolate.

Mature seeds with cinnamon-colored coma, beakless, 1-5 mm. long. 2. E. coloratum.

Mature seeds with white coma, short beaked, 1 mm. long. 3. E. adenocaulon.

1. Epilobium lineare Muhl.

In wet, swampy places. Big Sandy creek; Hooker county; Red Cloud; Thedford.

2. Epilobium coloratum Muhl.

In sandy marshes, mostly in the western part of the state. mont; Mullen; Riverton; Spencer; Valentine; Weeping Water. Bel-

3. Epilobium adenocaulon Haussk.

In moist, sandy ground mostly in the western part of the state. Bellevue; Ewing; Kennedy; Kimball; Long Pine; Minden; Mullen; Sioux county; Thedford; Valentine.

5. Enothera. (Including Onagra.) 658.

Ovules and seeds horizontal, angled; capsule tapering from a thickened base. 1. Œ. biennis.

Ovules and seeds ascending, not angled; capsule of nearly uniform diameter.

Stems decumbent or ascending; flowers axillary; leaves sinuatedentate or pinnatifid. 2. Œ. laciniata. Stems erect; flowers spicate; upper leaves remotely denticulate or

nearly entire. 3. Œ. rhombinetala.

1. Enothera biennis L. Common Evening-primrose.
Onagra biennis (L.) Scop.
Common throughout the state as a weed, mostly in sandy soil.
Aten; Atkinson; Deuel county; Lincoln; Mullen; Republican valley.

2. Œnothera laciniata Hill.

Common, especially in sandy soil over most of the state. Atkinson; Central City; Deuel county; Fairbury; Hastings; Keyapaha county; Long Pine: Thedford.

3. Enothera rhombipetala Nutt. On prairies, not very common. Kearney; Kennedy; Minden; Niobrara; Plummer Ford.

6. Anogra. 658.

1. A. albicaulis. Tips of the calvx lobes not free in the bud. Tips of the calyx lobes free in the bud.

ps of the calyx lobes free in the bad.
Capsule linear-cylindric; throat of the calyx glabrous.

2. A. pallida.

Leaves pubescent or strigose.

Leaves linear, entire or nearly so, strigose beneath.

Leaves usually denticulate or lobed, pubescent on both sides. 4. A. cinerea.

Capsule oblong, 8-20 mm. long; leaves deeply pinnatifid.

5. A. coronopifolia.

- 1. Anogra albicaulis (Pursh) Britton. Prairie Evening-primrose. In the western part of the state, mostly in the foot-hills. Curtis: Ft. Robinson; Girard.
- 2. Anogra pallida (Lindl.) Britton. Common in the sand-hill regions. Belmont; Callaway; Chelsea; Deuel county; Haigler; Hooker county; Pine Ridge; Valentine.
- 3. Anogra nuttallii (Sweet) A. Nels. Western Nebraska, according to Nelson in Bot. Gaz. 34:368. 1902.
- 4. Anogra cinerea Rydb. On sandy soil in the western part of the state. Deuel county.
- 5. Anogra coronopifolia (T. & G.) Britton. On high prairies in the western part of the state. Alliance; Belmont; Box Butte county; Deuel county; Pine Ridge.

7. Hartmannia. 660.

1. Hartmannia speciosa (Nutt.) Small. Red Cloud.

Showy Primrose.

8. Pachylophus. 660.

1. Pachylophus cæspitosa (Nutt.) Raimann.

Gumbo Lily, Stemless Primrose.

In dry soil in the western part of the state. Alliance; Ft. Robinson; Hat Creek basin.

9. Lavauxia. 661.

Leaves strigose-canescent; flowers over 5 cm. broad; capsule obtuse.

1. L. brachycarpa.

Leaves green; flowers less than 5 cm. broad; capsule beaked. 2. L. flava.

1. Lavauxia brachycarpa (A. Gray) Britton. Western Nebraska, according to Nelson's Flora of the Rocky Moun-

tains. . Yellow Primrose. 2. Lavauxia flava A. Nels.

Western Nebraska.

10. Gaurella, 661.

Spotted Primrose. 1. Gaurella canescens (Torr.) A. Nels. Gaurella guttulata (Geyer) Small. On dry prairies in the western part of the state. Banner county; Cheyenne county; Deuel county.

11. Megapterium. 661.

Petals 3-4 cm. long; capsules 2-3 cm. long, less than 2 cm. wide.

1. M. fremontii.

Petals 5-7 cm. long; capsules 5 cm. long, suborbicular.

2. M. missouriense.

1. Megapterium fremontii (S. Wats.) Britton. Dry bluffs in the Republican valley. Franklin; Red Cloud.

2. Megapterium missouriense (Sims) Spach. Missouri Primrose. Dry limestone bluffs, mostly along the Blue river. Beatrice; Fairbury; Homesville; Salem; Steele City; Wymore.

12. Galpinsia. 662.

Canescent; leaves narrow.

1. G. lavendulæfolia.
Hirsute-pubescent to tomentose; leaves broader.

2. G. interior.

1. Galpinsia lavandulæfolia (T. & G.) Small.

On dry prairies in the western part of the state. Deuel county.

2. Galpinsia interior Small. Nebraska, according to Small.

13. Meriolix. 662.

1. Meriolix serrulata (Nutt.) Walp.
Common on dry prairies all over the state. Antelope county; Deuel county; Fairbury; Franklin; Indianola; Kearney; Neligh; Pine Ridge; Plummer Ford; Ponca; Sheridan county; Sioux county.

14. Gaura. 662.

Plants 1.5-6 dm. high, bracts persistent.
Plants 6-15 dm. high, bracts deciduous.
Flowers 3-4 mm. broad, pink.

2. G. coccinea.
1. G. parviflora.

Flowers 3-4 mm. broad, pink.

Flowers 8-10 mm. broad, flowers white turning pink.

1. G. parviflora.
3. G. biennis.

1. Gaura parviflora Dougl.

A common weed over the whole state. Crawford; Franklin; Lincoln; Newark; St. James; Weeping Water.

2. Gaura coccinea Pursh.

Common in dry prairies and waste places throughout the state.

Belmont; Box Butte county; Hastings; Kearney; Lincoln; Ponca;

Sioux county; Thedford; Valentine.

3. Gaura biennis L.

A common weed in the eastern part of the state. Broken Bow; Crete; Kearney; Lincoln; Peru; Seward; Weeping Water.

15. Stenosiphon. 663.

1. Stenosiphon linifolium (Nutt.) Britton. In the valley of the Republican. Franklin; Red Cloud.

16. Circæa. 663.

1. Circæa lutetiana L. Enchanter's Nightshade. In woods mostly in the eastern part of the state. Bellevue; Dismal River; Franklin county; Grand Island; Pishelville; Plummer Ford.

3. HALORRHAGIDACEÆ.

Water-milfoil Family.

1. Myriophyllum. 665.

Floral leaves small, usually shorter than the flowers; fruit smooth or nearly so.

1. M. spicatum.

Floral leaves large, 5-12 mm. long, much longer than the flowers; fruit rough.

2. M. pinnatum.

1. Myriophyllum spicatum L. Spiked Water-milfoil. In water in various localities. Kearney; Long Pine; Whitman; Wood Lake.

2. Myriophyllum pinnatum (Walt.) B. S. P. Lincoln.

4. HIPPURIDACEÆ.

1. Hippuris. 665.

1. Hippuris vulgaris L. In swamps 25 miles south of Whitman.

Mare's-tail.

5. ARISTOLOCHIACEÆ.

1. Asarum. 348.

Asarum reflexum Bicknell.
 In northeastern Kansas and probably in southeastern Nebraska.

CACTALES.

1. CACTACEÆ.

Cactus Family.

Stems globose or ovoid, tubercled, not jointed.

Stems jointed, the joints flattened or cylindrical, not tubercled.

2. Opuntia.

1. Cactus (Coryphantha). 644.

Tubercles with 10-20 gray spines; berry 6-8 mm. in diameter.

1. C. missouriensis.

Tubercles with 3-8 reddish-brown spines surrounded by grayish ones; berry 12-18 mm. in diameter.

2. C. viviparus.

1. Cactus missouriensis (Sweet) Kuntze. Nipple Cactus.

2. Cactus viviparus Nutt.

In dry soil in the northwestern part of the state.

Alliance; Cherry county; Kearney; Sheridan county; Valentine.

2. Opuntia. 644.

Internodes of stem decidedly flattened, 5-20 cm. long.

Flowers yellow.

Pulvini 18-35 mm. apart, 1-5 spined or spines wanting; fruit pulpy, unarmed or nearly so.

Internodes 7-13 cm. long; spines dissimilar, 1-3 or wanting, 2-2.5 cm. long.

1. 0. humifusa.

Internodes 15-20 cm. long; spines alike, 3-5, 3.5-6 cm. long.

2. 0. tortispina.

Pulvini 8-12 mm. apart, spines 8-15; fruit dry, spiny.

3. O. polyacantha.
Flowers red; pulvini 2-4-spined; fruit, very spiny. 4. O. rhodantha.
Internodes terete or slightly flattened, easily breaking apart, 2-5 cm.
long.
5. O. fragilis.

1. Opuntia humifusa Raf. Western Prickly Pear. Common in dry soil in the northwestern part of the state. Belmont; Cherry county; Long Pine; Pine Ridge; Thomas county; Wilsonville.

2. Opuntia tortispina Englem. Nebraska, according to Britton's Manual.

3. Opuntia polyacantha Haw. In dry prairies mostly in the western part of the state. Alliance; Belmont; Cherry county; Grand Island; Holdrege; Phelps county; Pine Ridge; Plummer Ford; Thedford.

4. Opuntia rhodantha K. Sch. Nebraska, according to Rydberg's Flora of Colorado.

5. Opuntia fragilis (Nutt.) Haw. In dry soil in the northern and western parts of the state. Cherry county; Deuel county; Sheridan county; Valentine.

LOASALES.

Erect herbs; flowers perfect; stamens numerous.

Climbing or prostrate vines; flowers monœcious or diœcious; stamens not more than three.

1. Loasaceæ.
2. Cucurbitaceæ.

1. LOASACEÆ.

1. Mentzelia. 641.

Flowers small, not over 2 cm. broad, petals five; capsule linear.

1. M. albicaulis.

Flowers larger, over 3 cm. broad; capsule oblong.

Flowers yellowish-white, opening in the evening; capsule bracted.

Bracts below the capsule, entire or pinnatifid; flowers 5 cm.

broad.

2. M. nuda.

Bracts on the capsule; flowers 10 cm. broad, mostly solitary.

3. M. decapetala.

Flowers bright yellow, opening in sunshine; capsule bractless.

4. M. lævicaulis.

1. Mentzelia albicaulis Dougl. Scotts Bluff.

2. Mentzelia nuda (Pursh) T. & G.

Dry prairies in the western part of the state. Alliance; Belmont; Deuel county; Dismal River; Pine Ridge; Scotts Bluff; Turner creek.

3. Mentzelia decapetala (Pursh) Urban Gilg.
Dry prairies mostly in the western and northern parts of the state.
Chadron: Franklin; Grand Rapids; Hat Creek basin; Niobrara; Pine
Ridge; Red Cloud; Scotts Bluff county.

4. Mentzelia lævicaulis (Dougl.) T. & G. Box Butte county.

2. CUCURBITACEÆ.

Gourd Family.

Prostrate vines with large yellow flowers; corolla 6-10 cm. long; 1. Cucurbita. fruit smooth: perennial.

Climbing vines with small white or greenish flowers; fruit prickly; annuals.

Pistillate flowers solitary or 2 together; fruit several-seeded, de-2. Micrampelis. hiscent. Pistillate flowers clustered, 3-10 together: fruit 1-seeded, inde-

hiscent.

1. Cucurbita (Pepo), 882.

Fetid or Missouri Gourd. 1. Cucurbita fœtidissima H. B. K. On dry prairies mostly in the western part of the state. Franklin; Indianola; Lincoln; Peru; Wilsonville.

2. Micrampelis. 882.

1. Micrampelis lobata (Michx.) Greene. Balsam-apple. Common in rich soil along streams in the eastern part of the state. Ft. Robinson; Lincoln; Nebraska City; Spencer; Wahoo.

3. Sicvos. 883.

One-seeded Bur-cucumber. 1. Sicyos angulatus L. In moist soil, mostly along streams, in the eastern part of the state. Lincoln: Talmage.

CELASTRALES.

Petals 4 or 5 (wanting in Rhamnus alnifolia).

Leaves alternate, or if opposite simple; fruit various, but not a bladdery capsule.

Stamens opposite the petals.
Our species shrubs with alternate leaves. 1. Rhamnaceæ. 2. Vitaceæ. Vines with tendrils.

Stamens alternate with the petals; shrubs with alternate leaves 3. Celastraceæ. or vines without tendrils.

Leaves opposite, trifoliolate; fruit a bladdery capsule. 4. Staphyleaceæ.

Petals none.

Trees or shrubs; foliage scurfy or stellate-pubescent. 5. Elæagnaceæ. 6. Santalaceæ. Herbs; foliage glabrous.

1. Rhamnaceæ.

Buckthorn Family.

Flowers in axillary clusters; petals short clawed; fruit a drupe. 1. Rhamnus.

Flowers in terminal and axillary clusters; petals with very long 2. Ceanothus. claws; fruit dry.

1. Rhamnus. 612.

Flowers 2 or 3 together in the axils, not umbeled.

Petals present; calyx teeth 4; stigmas and nutlets 2. 1. R. lanceolata.

Petals wanting, calyx teeth 5; stigmas and nutlets 3. 2. R. alnifolia.

Flowers perfect, in axillary peduncled umbels. 3. R. caroliniana.

1. Rhamnus lanceolata Pursh.

In moist soil in the eastern part of the state.
Nehawka; Nemaha; Weeping Water; Wymore.

Buckthorn.
Bellevue; Meadville;

2. Rhamnus alnifolia L'Her.

In swampy soil in the eastern part of the state. Omaha.

3. Rhamnus caroliniana Walt.

In the southeastern part of the state. Weeping Water; Wymore.

2. Ceanothus, 613.

Peduncles terminal and axillary, elongated, the axillary as long as the leaves; leaves 2.5-5.5 mm. wide.

Peduncles mostly terminal, short; leaves 7-26 mm. wide.

1. C. americanus.

New Jersey Tea.

New Jersey Tea.

In the southeastern part of the state. Fairbury; Lincoln; Weeping Water.

2. Ceanothus ovatus Desf.

Common over most of the state. Cuba; Kennedy; Lincoln; Long Pine; Ponca; Red Cloud; Richardson county; Thedford; Valentine.

2. VITACEÆ.

Grape Family.

Leaves simple in ours, never palmately compound.

Inflorescence thrysoid, the peduncle usually continuing through it as a main axis, petals falling away together without expanding.

1. Vitis.

Inflorescence cymose, the peduncle repeatedly forked into several main branches, petals separating and expanding before falling.

2. Ampelopsis.

Leaves palmately compound.

3. Parthenocissus.

1. Vitis. 613.

Leaves densely floccose-pubescent beneath.

Twigs terete; fruit 10 mm. in diameter; seeds 2-3, about 6 mm. long.

1. V. æstivalis.

Twigs angular; fruit 6-8 mm. in diameter; seeds 1-2, about 4 mm. long.

2. V. cinerea.

Leaves glabrate or slightly pubescent beneath when young.

Leaves mostly 3-7-lobed; fruit 8-10 mm. in diameter, ripening in summer; seeds 2-4.

3. V. vulpina.

Leaves sometimes slightly 3-lobed; fruit 6 mm. in diameter, ripening after frost; seeds 1-2.

4. V. cordifolia.

1. Vitis æstivalis Michx.

Summer Grape.

Reported from Weeping Water.

2. Vitis cinerea Engelm.

Along the Missouri in the southeastern part of the state. Peru.

3. Vitis vulpina L.

Common along streams throughout the state.

Nebraska City; Newcastle; Peru; Pine Ridge; Plummer Ford; Tecumseh; Thedford; Valentine.

4. Vitis cordifolia Michx. Frost or Chicken Grape. Nebraska, according to Britton & Brown.

2. Ampelopsis. 615.

1. Ampelopsis cordata Michx.

Along the Missouri in the southeastern part of the state. Peru;

Nemaha.

3. Parthenocissus. 616.

1. Parthenocissus quinquefolia (L.) Planch. Virginia Creeper.
Psedera quinquefolia (L.) Greene.
In woods and thickets, mostly along streams, throughout the state.
Banner county; Natick; Pine Ridge; Valentine.

3. CELASTRACEÆ.

Staff-tree Family.

Shrubs with opposite leaves. Climbing vines with alternate leaves. Euonymus.
 Celastrus.

1. Euonymus. 605.

1. Euonymus atropurpureus Jacq. Burning Bush. Rather common in the southeastern part of the state and extending along the Niobrara as far west as Pine Ridge. Crete; Lincoln; Long Pine; Peru; Pine Ridge; St. James; Wahoo; Weeping Water.

2. Celastrus. 606.

1. Celastrus scandens L. Climbing Bitter-sweet. Common along streams throughout the state. Bellevue; Cushman; Franklin; Kearney; Lincoln; Omaha; Plummer Ford; St. Helena; Valentine; Wymore.

4. STAPHYLEACEÆ.

Bladder-nut Family.

1. Staphylea. 606.

1. Staphylea trifolia L. Bladder-nut. In the southeastern part of the state. Bellevue; Florence; Nebraska City; Peru.

5. ELAEAGNACEÆ.

Oleaster Family.

1. Lepargyræa. 647.

1. Lepargyræa argentea (Nutt.) Greene. Buffalo-berry. On sandy banks, mostly in the northern and western parts of the state. Anselmo; Cedar Creek; Clearwater; Crawford; Franklin; Fremont island; Kearney; Niobrara; Peru; Ponca; Valentine.

6. SANTALACEÆ.

Sandalwood Family.

1. Comandra. 345.

Leaves lanceolate to oblong, bright green.

1. C. umbellata.
Leaves, at least those of the branches, linear, glaucous.

2. C. pallida. 1. Comandra umbellata (L.) Nutt. In the southeastern part of the state. Ft. Robinson; Hooper; Lincoln: Ponca: Valentine; Weeping Water.

2. Comandra pallida A. DC. In dry soil in the western part of the state. Banner county; Cherry county; Ewing; Sioux county; Stratton; Thedford.

SAPINDALES.

Leaves opposite. Leaves palmately compound. Leaves simple or pinnately compound. Leaves alternate in our species.

1. Hippocastanaceæ. 2. Aceraceæ.

Leaves compound in our species.

Flowers in terminal or axillary panicles; fruit a small drupe. 3. Anacardiaceæ.

Staminate flowers in drooping aments, the pistillate solitary or several together; fruit a nut covered with husk. 4. Juglandaceæ.

Leaves simple; the staminate flowers in aments.

Style branches 2; pistillate flowers in aments except in corylus. 5. Betulaceæ.

Style branches 3 or more; pistillate flowers not in aments, subtended by an involucre which becomes a bur or cup in fruit.

6. Fagaceæ.

1. HIPPOCASTANACEÆ.

Buckeye Family.

1. Æsculus. 609.

Ohio Buckeye. 1. Æsculus glabra Willd. In the southeastern part of the state. Nemaha, Pawnee, and Richardson counties.

2. ACERACEÆ.

Maple Family.

1. Acer. 607.

Leaves simple.

Leaves 1-1.5 dm. long, silvery white and pubescent beneath; 1. A. saccharinum. Leaves 3-8 cm. long, glabrous on both sides; western.

2. A. glabrum. 3. A. negundo.

Leaves pinnately compound. 1. Acer saccharinum L. Soft Maple. Along streams in the southeastern part of the state. Lincoln; Nebraska City; Wymore.

Mountain Maple. 2. Acer glabrum Torr. In canyons in the northwestern part of the state. Hat Creek basin; Squaw canyon.

Boxelder. 3. Acer negundo L. Common all over the state, mostly along streams. Anselmo; Lincoln; Nebraska City; Norway.

3. ANACARDIACEÆ.

Sumac Family.

1. Rhus. 600.

Leaves pinnate, leaflets 9 or more. Leaflets pinnate or nearly so; rachis wing-margined. 1. R. copallina. 2. R. glabra. Leaflets sharply serrate; rachis not winged. Leaves trifoliolate.

Leaflets 3-lobed, 1.5-2.5 cm. long; fruit pubescent. 3. Leaflets mostly entire, 3-10 cm. long; fruit glabrous. 3. R. trilobata.

Vines climbing by aerial roots, or trailing, rarely subcrect; fruit about 4 mm. in diameter.

Shrubs without aerial roots; fruit 5-6 mm. in diameter.

5. R. rydbergii.

Dwarf or Black Sumac. 1. Rhus copallina L. In the extreme southeastern part of the state. Nemaha; Rulo.

- 2. Rhus glabra L. Smooth or Scarlet Sumac. Common throughout the state. (Our western forms from Aten, Anselmo, Plummer Ford and Thedford may belong to Rhus cismontana Greene.) Anselmo; Aten; Emerald; Fairbury; Lincoln; Nebraska City; Plummer Ford: Thedford.
- 3. Rhus trilobata Nutt. Common in the western part of the state. Arapahoe; Belmont; Deuel county; Herrick; Long Pine; Pine Ridge; Thedford; Valentine.

Poison-ivy. 4. Rhus radicans L.

Common in woods and along fences. Lincoln.

Western Poison-ivy. 5. Rhus rydbergii Small. In open woods and prairies. Kearney; Long Pine; Minden; Newcastle: Valentine.

4. JUGLANDACEÆ.

Walnut Family.

Husk not dehiscent, nut rough; leaflets 11-23; pith chambered.

Husk dehiscent, nut smooth or angled; leaflets (in our species) 3-9, pith continuous.

1. Juglans. 323.

Fruit globose; twigs and petioles puberulent; bark brown and rough; pith cream colored; no downy pad over the leaf-scar. 1. J. nigra. Fruit elongated; twigs and petioles viscid pubescent; bark gray, smoother; pith brown; a downy pad over the leaf-scar. 1. Juglans nigra L. Black Walnut. Along streams mostly in the eastern part of the state. Lincoln; Long Pine; Naponee; Nebraska City; Wahoo; Wymore; Weeping Water.

2. Juglans cinerea L. Butternut. Found in the southeastern part of the state. Nebraska City: Weeping Water: Wymore.

2. Hicoria (Carva). 323.

Bud scales valvate, 4-8, falling soon after the bud opens; fruit 25-35 mm. long, husk thin with wing-like ridges, nut bitter, not edible.

1. H. minima.

Bud scales imbricated, 8-12, the inner elongating when the bud opens and tardily deciduous; fruit 35 mm. or more long.

Bark shaggy; nuts with thick whitish shells, edible. Leaflets 3-5; nuts rounded at the base. 2. H. ovata. Leaflets 7-9; nuts pointed at the base. 3. H. laciniosa: Bark ridged, rough but not shaggy; nuts with brownish shells.

1. Hicoria minima (Marsh.) Britton. Bitter-nut. Common along streams in the southeastern part of the state. Cass county; Lincoln; Nebraska City; Platte River; Peru; Wabash; Wymore; Weeping Water.

2. Hicoria ovata (Mill.) Britton. Shagbark or Shellbark Hickory. Along the Missouri in the southeastern part of the state. Nebraska City; Peru; Plattsmouth; Richardson county.

3. Hicoria laciniosa (Michx. f.) Sarg. Rare in Richardson county.

King Nut.

4. Hicoria alba (L.) Britton.

Mockernut Hickory. Rare along the Missouri in the southeastern part of the state.

5. BETULACEÆ

Birch Family.

Bracts of the staminate aments each with a single flower; nut neither winged nor margined.

Trees; pistillate flowers numerous in spike-like aments; nuts small, 4-5 mm. long.

Bracts flat, not enclosing the flower or fruit. 1. Carpinus. Bracts tubular, becoming bladder-like and enclosing the fruit.

2. Ostrya.

Shrubs; pistillate flowers few, 2-4, in capitate clusters; nut 12 mm. long or more.

Bracts of the staminate aments with 3-6 flowers each; nut winged or margined, i. e., a samara. 4. Betula.

1. Carpinus. 326.

1. Carpinus caroliniana Walt. Hornbeam, Blue Beech. Reported from Sarpy and Brown counties.

2. Ostrya. 327.

1. Ostrya virginiana (Mill.) Willd. Ironwood, Hop Hornbeam. Along streams in the eastern and northern parts of the state. Bellevue; Long Pine; Nebraska City; Ponca; South Bend; Weeping Water.

3. Corylus. 327.

1. Corylus americana Walt.

Along streams in the eastern part of the state. Fremont; Nebraska City; Omaha; Peru; Weeping Water; Wymore.

4. Betula. 327.

Bark chalky white, leaves dentate or serrulate.
Bark greenish-brown, leaves coarsely serrate.

1. B. papyrifera.
2. B. fontinalis.

1. Betula papyrifera Marsh. Paper or Canoe Birch. In the northwestern part of the state, not common. Brown county; Ft. Niobrara; Merriman; Valentine.

2. Betula fontinalis Sarg.
Betula occidentalis Hook.

In the northwestern part of the state. Harrison; Hat Creek basin.

6. FAGACEÆ.

Oak or Beech Family.

1. Quercus. 332.

Leaves entire or toothed, not lobed.

Leaves entire.
Leaves toothed.
Leaves lobed.

Q. imbricaria.
 Q. muhlenbergii.

Lobes not bristle-tipped; acorns annual, maturing in one season.

Acorns sessile or short pedicelled.

Terminal lobes of the leaf not larger than the others; acorn

Terminal lobes of the leaf not larger than the others; acorn much exceeding the shallow cup.

Terminal lobes of the leaf much larger than the others; acorns not much exceeding the deep cup.

Acorns long pedicelled.

3. Q. macrocarpa.
4. Q. bicolor.

Lobes bristle-tipped; acorns biennial, requiring two seasons to ma-

Leaves pinnately lobed.

Cup of the acorn shallow, saucer-shaped.

Leaves dull; acorns about 25 mm. long.

Leaves shining; acorns usually less than 15 mm. long.

7. Q. palustris.

Cup of acorns deeper, hemispheric.

Leaves glabrous, very deeply lobed.

Leaves pubescent, at least when young, less deeply lobed.

9. Q. velutina.

Leaves obovate, 3-5-lobed towards the apex. 10. Q. marylandica.

1. Quercus muhlenbergii Engelm. Yellow or Chestnut Oak.
Along streams in the southeastern part of the state. Nebraska City;
Nehawka; Nemaha; Peru; Richardson county.

2. Quercus alba. L.
Rare in the southeastern part of the state. Richardson county;
Weeping Water.

3. Quercus macrocarpa Michx.

Bur Oak.

Very common, mostly along streams, in the eastern half of the

state. Bellevue: Guide Rock: Lincoln: Nemaha: Ponca: Red Cloud; Valentine.

4. Quercus bicolor Willd. Swamp White Oak. Rare in the southeastern part of the state. Talmage.

Shingle Oak. 5. Quercus imbricaria Michx. Rare along the Missouri in the southeastern part of the state. Peru.

- 6. Quercus rubra L. Mostly along the Missouri and its tributaries in the southeastern part of the state. Aside from the bur oak, this is the most common and widely distributed oak in the state. Dixon county; Nebraska City; Nemaha; Weeping Water.
- 7. Quercus palustris DuRoi. Pin or Swamp Oak. A single tree near Table Rock seems to belong here.
- 8. Quercus coccinea Wang. Scarlet Oak. Along streams in the southeastern part of the state. Peru: Richardson county; South Bend.
- 9. Quercus velutina Lam. Black Oak. Along the Missouri and its tributaries as far up as the Platte, in the southeastern part of the state. Cedar island; Table Rock.
- 10. Quercus marylandica Muench. Black-jack Oak. Along streams in the southeastern part of the state. Nemaha; Rulo; Table Rock.

UMBELLALES.

Styles 2-5; our species herbs. Fruit a 2-5-seeded berry.

Fruit dry, splitting into 2 mericarps when mature.

1. Araliaceæ.
2. Umbelliferæ. Fruit a 2-5-seeded berry. Style 1; shrubs or trees.

3. Cornaceæ.

1. ARALIACEÆ.

Ginseng Family.

Leaves alternate, decompound; styles 5; fruit black. Leaves 3, whorled, 3-7-foliolate; styles 2-3; fruit red or yellow. 2. Panax.

1. Aralia, 667.

Caulescent; leaves several; leaflets cordate. 1. A. racemosa. Acaulescent; leaf usually solitary; leaflets rounded or narrowed at the base. 2. A. nudicaulis.

1. Aralia racemosa L. Indian-root. In woods along the Missouri. Nemaha; Nebraska City; Peru.

2. Aralia nudicaulis L. Wild Sarsaparilla. In moist woods. Ft. Niobrara: Ponca.

2. Panax. 668.

1. Panax quinquefolium L. Ginseng. In woods along the Missouri. Albright: Bellevue.

2. UMBELLIFERÆ.

Carrot Family.

Leaves simple; flowers in dense capitate clusters, white or blue. 2. Eryngium.

Leaves, at least some of them, compound.

Fruits bristly, 3-7 mm. long. Bristly on the wings only; flowers white or pink, with the central one purple.

21. Daucus.

1. Sanicula. Bristly all over with hooked bristles.

Fruits not bristly, sometimes tuberculate.

Fruits not strongly flattened dorsally.
Fruits about 12 mm. long, 2 mm. wide; umbels few-rayed; 3. Washingtonia. flowers white.

Fruits not over 7 mm. long. Fruits tuberculate, less than 2 mm. long. 4. Apiastrum. Fruits not tuberculate, 2 mm. or more long.

Plants acaulescent, or low and decumbent, or ascending

less than 3 dm. high.

Fruits not winged. Perennials; fruits 2-4 mm. long. 5. Musineon.

Annuals, ours with procumbent stems.

22. Chaerophyllum. Fruits broadly winged 6 mm. long. 14. Cymopterus. Plants with erect leafy stems, 3-20 dm. high.

Fruits not broadly winged.

Length of fruits less than 4 mm. Involucres of numerous bracts.

Fruits 3 mm. long with prominent ribs. 9. Sium. Fruits less than 2 mm. long with slender inconspicuous ribs.

Involucre of a few small bracts or wanting. Leaves ternately compound; serrate; flowers

Leaves pinnately compound; flowers white; fruits 2-3 mm. long, rhizome and roots 7. Cicuta.

tuberous. Length of fruits 4-6 mm.

Leaves ternately compound, leaflets broad.

Leaves 3-parted, leaflets often incised: flowers 8. Deringa.

Leaves once to thrice ternate, leaflets merely serrate; flowers yellow. 6. Zizia. Leaves dissected into capillary segments; flowers

11. Fœniculum. yellow. Fruit with 7-10 of its ribs broadly winged.

12. Thaspium.

Fruits strongly flattened dorsally, carpels usually with marginal wings.

Plants acaulescent or nearly so.

15. Phellopterus. Involucre present; flowers white.

Involucre wanting.

Fruits 4-6 (7) mm. long. Both dorsal and lateral ribs broadly winged; flowers 14. Cymopterus. white.

Only the lateral ribs winged. 17. Lomatium. Fruits 8-12 mm. long, 4 mm. wide; flowers yellow.

18. Cynomarathrum.

Plants with tall, erect, leafy stems.

Fruits about 4 mm. long; leaves pinnately decompound; flowers white.

13. Conioselinum.

Fruits 5-12 mm. long.

Leaves pinnate; flowers yellow.

Leaflets lobed or incised; carpels wing-margined.

Leaflets pinnatifid or parted; carpels with thick, obtuse margins.

Leaves ternate, leaflets very broad; fruit 8-12 mm. long; flowers white.

19. Pastinaca.
16. Polytænia.
20. Heracleum.

1. Sanicula. 672.

Fruit 6 mm. long; petals and anthers greenish-white.

Fruit 4 mm long or logg

Fruit 4 mm. long, or less.

Calyx lobes ovate; styles longer than the bristles; petals yellow.

2. S. gregaria.

Calyx lobes lanceolate; styles shorter than the bristles; petals white.

3. S. canadensis.

1. Sanicula marylandica L.

Snake-root. In woods mostly in the eastern part of the state. Harrison; Hastings; Indianola; Nebraska City; Weeping Water.

2. Sanicula gregaria Bicknell.

In woods and thickets mostly in the eastern part of the state. Lincoln; Milford; Nebraska City; Ponca; Walton; Weeping Water.

3. Sanicula canadensis L.

In woods and thickets mostly along streams. Bordeaux; Lincoln; Plummer Ford; Red Cloud; Sioux county.

2. Eryngium. 673.

1. Eryngium aquaticum L. Button Snake-root. In wet places in the southeastern part of the state. Nemaha county.

3. Washingtonia (Osmorrhiza). 675.

Stylopodium and style 0.7-1 mm. long; fruit, not including the pedicel-like base, 1-1.3 cm. long.

1. W. claytoni. Stylopodium and style 2-4 mm. long; fruit 1.2-1.5 cm. long.

2. W. longistylis.

1. Washingtonia claytoni (Michx.) Britton. Sweet Cicely. In woods, mostly in the eastern part of the state. Fremont; Nehawka; Nebraska City; Ft. Niobrara; Ponca.

2. Washingtonia longistylis (Torr.) Britton.

In rich woods throughout the state, but most common in the eastern part. Anselmo; Glen; Long Pine; Saltillo; Sioux county; Weeping Water.

4. Apiastrum (Spermolepis). 676.

1. Apiastrum patens (Nutt.) Coult. & Rose. In sandy prairies in the eastern part of the state. Atkinson; Fairbury; Neligh; Oreopolis; Riverton; St. Paul.

5. Musineon, 677.

Stems leafy; branching from the base.

Stems and fruits smooth. Stems and fruits scabrous.

1. Musineon divaricatum (Pursh) Nutt.

1. M. divaricatum. 2. M. hookeri. 3. M. tenuifolium. Acaulescent; fruits about 2 mm. long.

On dry prairies in the western part of the state. Harrison; Whit-

2. Musineon hookeri (T. & G.) Nutt.

Nebraska, according to Britton's Manual.

3. Musineon tenuifolium Nutt.

In dry or rocky soil in the western part of the state; frequently in the bad-lands. Belmont; Harrison; Long Pine; Scotts Bluff county.

6. Zizia, 678.

1. Zizia aurea (L.) Koch. Golden Meadow-parsnip. Common in low meadows in the eastern part of the state. Edgar; Leshara; Ponca; Long Pine; Weeping Water.

7. Cicuta. 679. 1073.

1. C. occidentalis. Leaflets lanceolate. Leaflets linear, the upper leaves small and bearing bulblets in their 2. C. bulbifera.

Western Water-hemlock. Common in wet meadows throughout the state. The rhizomes and tuberous roots of these plants are very poisonous, 2-3 ozs. being enough to kill a sheep. See Bull. No. 100 of the Nevada Station. Cherry county; Hooker county; Kearney; Lincoln; Niobrara; Scotts Bluff; Simeon; Valentine. 1. Cicuta occidentalis Greene.

Water-hemlock. 2. Cicuta bulbifera L. In swampy places, not common. Neligh; Simeon; St. Paul; Whitman.

8. Deringa. 679.

1. Deringa canadensis (L.) Kuntze.

Cryptotænia canadensis (L.) DC.

In woods in the eastern part of the state. Cass county; Lincoln;

Nemaha; Newcastle; Wahoo.

9. Sium. 680.

Hemlock Water-parsnip. 1. Sium cicutæfolium Gmel. In wet soil throughout the state. Atkinson; Kennedy; Kearney; Plainview: Whitman.

10. Berula, 681.

1. Berula erecta (Huds.) Coville. Cut-leaved Water-parsnip. In streams and ponds mostly in the western part of the state. Arcadia; Banner county; Bellevue; Belmont; Broken Bow; Cherry county; Paddock; Pauline; Plummer Ford; Scotts Bluff; Valentine.

11. Fœniculum. 682.

1. Fæniculum fæniculum (L.) Karst. Fœniculum vulgare Hill.

Fennel.

Dorsey: Long Pine.

12. Thaspium. 683.

1. Thaspium barbinode (Michx.) Nutt. Meadow-parsnip. Along streams and in wet meadows in the eastern part of the state. Lincoln; Nebraska City.

13. Conjoselinum, 684.

1. Conioselinum chinense (L.) B. S. P. In swamps. Blue Hill.

Hemlock-parsley.

14. Cymopterus. 685.

1. Cymopterus acaulis (Pursh) Rydb. In dry soil in the western part of the state. Alliance; Big Springs; Long Pine; McCook; Ft. Robinson; Stratton; Valentine; Whitney.

15. Phellopterus. 685. 1073.

1. Phellopterus montanus Nutt. Cymopterus montanus T. & G.

In dry soil in the western part of the state. Alliance; Deuel county; Gordon; Valentine.

16. Polytænia. 685.

1. Polytænia nuttallii DC.

In dry soil in the southeastern part of the state. Lincoln.

17. Lomatium (Cogswellia). 687. 1073.

Bracts of the involucels distinct.

Flowers white or pink.

Flowers yellow.

Bracts of the involucels united; flowers yellow.

1. L. orientale.
2. L. fœniculaceum.
3. L. daucifolium.

1. Lomatium orientale C. & R.

In dry soil in the northern and western part of the state. Foster; Long Pine; McCook; Minden; Valentine.

2. Lomatium fœniculaceum (Nutt.) C. & R. Wild Parsley. In dry prairies. Neligh; Rushville.

3. Lomatium daucifolium (Nutt.) C. & R.

In dry soil over most of the state. Fairbury; Humboldt; Lincoln; South Bend.

18. Cynomarathrum. 687. 1073.

1. Cynomarathrum nuttallii (A. Gray) C. & R. In dry soil in the western part of the state. Scotts Bluff.

19. Pastinaca. 688.

1. Pastinaca sativa L. Parsnip. Introduced in many places in the state. Grand Island; Long Pine; Mead; Newcastle.

20. Heracleum. 688.

1. Heracleum lanatum Michx. Cow Parsnip. In wet soil along streams. Fremont; Long Pine; Newcastle.

21. Daucus. 688.

1. Daucus carota L. Wild Carrot. Introduced, frequently with alfalfa seed, in various parts of the state. Brunswick; Kearney; Loup City; Nebraska City; Palmer.

22. Chaerophyllum. 674.

1. Chaerophyllum procumbens (L.) Crantz. Introduced but not common. Salem.

Spreading Chervil.

3. CORNACEÆ.

Dogwood Family.

1. Cornus. 689.

Fruit light-blue; twigs purple and usually pubescent when young; stone oblique, ridged.

1. C. amomum. Fruit white; twigs gray, reddish or if purplish glabrous.

Fruit white; twigs gray, reddish or if purplish glabrous.

Upper surface of leaves rough, young twigs slightly pubescent.

2. C. asperifolia.

Upper surface of leaves smooth.

Twigs reddish.

Young twigs villous pubescent, stone slightly oblique, longer than broad.

3. C. baileyi.

Young twigs sparingly strigose; stone very oblique, broader than long.

4. C. stolonifera.
Twigs gray, stone subglobose.

5. C. femina.

- 1. Cornus amomum Mill.

 In wet soil along streams. Long Pine; Peru; Pishelville; Weeping Water.
- 2. Cornus asperifolia Michx. Rough-leaved Dogwood. In wet soil along streams over most of the state. Auburn; Callaway; Franklin; Lincoln; Minden; Neligh; Walton; Weeping Water.

3. Cornus baileyi Coult. & Evans. Dismal River; Cedar Island; St. James; Pine Ridge.

4. Cornus stolonifera Michx. Red-osier Dogwood. Common in wet soil along streams throughout the state. Anselmo; Kearney: Lincoln; Nebraska City; Pine Ridge; Richardson county; Scotts Bluff county; St. James: Thedford; Valentine.

5. Cornus femina Mill.
Rich soil in eastern part of the state. Kearney; Wahoo.

Subclass INFERÆ.

RUBIALES.

Stamens usually 4; calyx and corolla lobes 4, or if 3 fruit didymous.

1. Rubiaceæ.

Stamens usually 5; calyx and corolla lobes 5, or if 3- or 4-lobed the leaves pinnate.

2. Caprifoliaceæ.

1. RUBIACEÆ.

Madder Family.

Shrubs or small trees; flowers densely capitate.

2. Cephalanthus.
Herbs; flowers not capitate.

Leaves opposite with small stipules.

Leaves opposite with large foliaceous stipules making them appear verticillate.

3. Galium.

1. Houstonia. 860.

1. Houstonia angustifolia Michx.

Star-violet.

In dry soil in the southeastern part of the state. Beatrice; Bellevue; Franklin; Indianola; Odell; Red Cloud; Wymore.

2. Cephalanthus. 862.

1. Cephalanthus occidentalis L.

Button-bush.

In wet soil along streams in the southeastern part of the state. Auburn; Cedar creek; West Point.

3. Galium. 864.

Goosegrass, Bedstraw.

Fruits bristly.

Leaves and stipules 6-8 in each whorl.

Stems retrorsely hispid on the angles; fruits 4-6 mm. broad.

Stems nearly smooth; fruits 3-4 mm. broad.

1. G. aparine.
4. G. triflorum.

Leaves 4 in each whorl.

Leaves broad, 8-6 mm. wide; fruit 4 mm. wide. 2. G. circæzans.

Leaves lanceolate, 2-6 mm. wide; fruit 2 mm. wide. 3. G. boreale.

Fruits smooth.

Leaves 4 in each whorl.

Stems nearly glabrous; leaves 12-25 mm. long.

Stems rough; leaves 5-15 mm. long.

Leaves 6 in each whorl.

5. G. tinctorium.
6. G. trifidum.
7. G. concinnum.

1. Galium aparine L.

Cleavers.

A common weed in woods and waste places throughout the state. Endicott; Pauline; Sioux county; Thedford; Valentine; Weeping Water.

2. Galium circæzans Michx.

In the eastern part of the state. Crete; Grand Island; Lincoln; Nemaha; Paddock.

3. Galium boreale L.

In the western part of the state, often in dry, rocky soil. Belmont; Harrison; Pine Ridge; Pumpkin Seed valley; Wild Cat mountains.

4. Galium triflorum Michx.

In woods, mostly in the eastern part of the state. Belmont; Endicott; Mullen; Neligh; Ponca creek; Wabash; Weeping Water.

5. Galium tinctorium L.

In woods and wet meadows in the southeastern part of the state. Newark; Weeping Water.

6. Galium trifidum L. Small Cleavers. In shady weeds and wet meadows over most of the state. Boelus; Cherry county; Gage county; Plainview; Ponca; Red Cloud; Thedford; Whitman.

7. Galium concinnum Torr. & Gray.

In woods in the southeastern part of the state. Nemaha; Weeping Water.

2. CAPRIFOLIACEÆ.

Honevsuckle Family.

Leaves pinnately compound. Leaves simple.

1. Sambucus.

Herbs; flowers clustered in the axils.

3. Triosteum.

Shrubs or woody vines.

Inflorescense not subtended by connate-perfoliate leaves.

Rlowers in a terminal umbel-like cyme.

2. Vib 2. Viburnum. 4. Symphoricarpos. Flowers in axillary clusters. Inflorescense in our native species subtended by connate-perfoli-5. Lonicera. ate leaves.

1. Sambucus. 869.

Elder. 1. Sambucus canadensis L. In moist soils along streams over most of the state. Aten; Kirkwood; Lincoln; Red Cloud; Talmage; Walton; Wymore.

2. Viburnum, 870.

Nanny-berry, Sheep-berry. 1. Viburnum lentago L. Along streams in the eastern part of the state. Ashland; Plattsmouth: Table Rock.

3. Triosteum, 872.

Horse-gentian. 1. Triosteum perfoliatum L. In low grounds in the eastern part of the state. Crete; Lincoln; Ponca; Peru; Plattsmouth; Weeping Water.

4. Symphoricarpos. 873.

Berry white, large, over 5 mm. in diameter; style glabrous. Axillary clusters 1-3-flowered; stamens and style included.

1. S. racemosus. Axillary clusters many-flowered, distinctly spicate; stamens exserted. Berry purplish-red, 3-4 mm. in diameter; style bearded; stamens in-3. S. symphoricarpos.

1. Symphoricarpos racemosus Michx. Low Snowberry. In dry, rocky soil in the western part of the state. Hat Creek basin; Ft. Niobrara: Shelton.

2. Symphoricarpos occidentalis Hook. Wolfberry. Common throughout the state. Anselmo; Banner county; Cherry county; Julia; Lincoln; Republican City; Sioux county; St. Helena; Thedford: Wahoo.

3. Symphoricarpos symphoricarpos (L.) MacM. Coral-berry. In woods mostly in the eastern part of the state. Anselmo; Cass county; Lincoln; Republican valley.

5. Lonicera, 874.

Corolla 2-lipped, its tube much longer than the lobes, gibbous at the

Leaves pubescent beneath, the margins cartilaginous.

1. L. glaucescens. Leaves glabrous and glaucous beneath, margins not cartilaginous. 2. L. dioica.

Corolla nearly regular, the tube several times as long as the lobes, 3. L. sempervirens. not glabrous.

Western Honeysuckle. 1. Lonicera glaucescens Rydb.

In woods along streams. Bellevue; Ft. Niobrara.

Smooth-leaved Honeysuckle. 2. Lonicera dioica L. In woods along streams in the eastern part of the state. Ashland; Bellevue; Peru; Richardson county.

Trumpet Honeysuckle. 3. Lonicera sempervirens L.

In woods along the Missouri in Cass county.

CAMPANULALES.

Flowers not in involucrate heads; calyx normal. 1. Campanulaceæ. Flowers in involucrate heads; calyx reduced to scales or bristles 2. Asteraceæ. called pappus, or wanting.

1. CAMPANULACEÆ.

Bell-flower Family.

Corolla regularly 5-lobed or wanting in some of the flowers, anthers separate.

Corolla usually campanulate, present in all of the flowers.

1. Campanula.

Corolla rotate, wanting in most of the flowers. 2. Specularia. Corolla 2-lipped, split to the base on one side, anthers united. 3. Lobelia.

1. Campanula. 884.

Flowers racemose or paniculate, corolla campanulate.

Corolla usually 15 mm. long or more, the tube several times as long as the lobes. 1. C. petiolata. Corolla less than 10 mm. long, the lobes about as long as the tube.

2. C. aparinoides. 3. C. americana.

Flowers spicate, the corolla rotate.

Blue-bells.

1. Campanula petiolata DC. Campanula rotundifolia L.

In moist soil in the western part of the state. Belmont; Dawes county; Carns; Rock county; Scotts Bluff county; Valentine; War Bonnet canyon.

2. Campanula aparinoides Pursh. Marsh Bellflower. In swampy places in the western part of the state. Anselmo; Cherry county; Dukeville; Lincoln; Long Pine; Plummer Ford; Valentine.

3. Campanula americana L. In moist thickets and woods in the eastern part of the state. Crete; Endicott; Holt county; Lincoln: Valentine; Wahoo; Walton; Weeping Water.

2. Specularia, 886.

Leaves orbicular or broadly ovate, mostly cordate-clasping.

1. S. perfoliata. 2. S. leptocarpa. Leaves linear-lanceolate, not clasping. 1. Specularia perfoliata (L.) A. DC. Venus' Looking-glass. In prairies and dry woods over most of the state. Crete; Box Butte county; Lincoln; Riverton; Thedford; Valentine; Wahoo.

2. Specularia leptocarpa (Nutt.) A. Gray. In dry soil, not common. Lincoln; Minden.

3. Lobelia. 887.

Flowers scarlet or red, rarely white, 25 mm. or more long.

Flowers blue or white.

Flowers 20 mm. long or more. Flowers 10 mm. long or less.

2. L. syphilitica.

Puberulent; stem simple with a single terminal spike; flowers 8-10 mm. long; capsule not inflated.

Pubescent; stems branched; spikes several; flowers 4-6 mm. long. capsule inflated.

4. L. inflata.

1. Lobelia cardinalis L. Cardinal-flower.

In low ground along the Republican river. Franklin.

2. Lobelia syphilitica L. Great Lobelia. Common in low ground over most of the state. Alliance; Bellevue; Crawford; Dismal River; Franklin; Kearney; Laurel; La Platte; Weeping Water; Wymore.

3. Lobelia spicata Lam.

Pale Lobelia.
In meadows and in dry soil over most of the state. Broken Bow;
Cherry county; Clearwater; Franklin; Wahoo; Whitman.

4. Lobelia inflata L. Indian Tobacco.

Along the Republican river. Franklin.

2. ASTERACEÆ. (COMPOSITÆ.)

Aster Family. Composites.

Key to the Tribes.

Flowers all ligulate, similar to the ray-flowers of other tribes, but perfect; plants with a milky juice (latex). 11. Cichorieæ. Flowers all tubular or the marignal (rays) ligulate; rays pistillate or neutral.

Receptacle densely bristly; true rays never present, marginal flowers sometimes enlarged. 10. Cynareæ.

Receptacle naked or chaffy, or if bristly, rays present.

Flowers all pistillate or staminate; rays wanting; pappus wanting or reduced to a mere ring or border.

6. Ambrosieæ.
Flowers some or all perfect, or pappus of scales or bristles.

Involucral bracts green, or only the tip or margins scarious.

Receptacle naked or rarely bristly; pappus often capillary.

Involucral bracts imbricated in 2-many series.

Rays wanting; flowers all perfect, never bright yellow.
Style branches filiform-subulate; leaves alternate;
pappus never plumose nor heads spicate.

1. Vernonieæ.

Style branches thickened, obtuse; leaves opposite, or if alternate, pappus plumose or heads spicate.

2. Eupatorieæ.

Rays usually present, if wanting the flowers bright yellow or the marginal pistillate.
3. Astereæ. Involucial bracts little if at all imbricated.

Pappus of chaffy scales or wanting. 7. Helenieæ. 9. Senecioneæ. Pappus of capillary bristles.

9. Senecioneæ.
Receptacle chaffy, each flower in the axil of a bract; pappus

5. Heliantheæ. never of capillary bristles.

Involucral bracts scarious.

Pappus usually present, capillary; anthers caudate. 4. Inuleæ. Pappus never capillary often reduced or wanting; anthers 8. Anthemideæ. not caudate.

Tribe 1. VERNONIEÆ.

1. Vernonia. 918.

Leaves lanceolate, pinnately veined.

Involucial bracts with appressed tips.

Involucial bracts with appressed tips.

Involucial bracts with appressed tips.

2. V. fasciculata. Involucral bracts with appressed tips. 3. V. marginata.

Leaves linear, one-nerved.

Baldwin's Ironweed. 1. Vernonia baldwinii Torr. A common weed in dry soil. Arcadia; Bertrand; Callaway; Minden; Red Cloud; Weeping Water.

Western Ironweed. 2. Vernonia fasciculata Michx. A common weed, especially in low pastures. Bellevue; Culbertson; Grand Island; Grand Rapids; Laurel; Lincoln; Minden; Nemaha; Red Cloud; Valentine; Wahoo.

3. Vernonia marginata (Torr.) Britton. In dry prairies. Fremont.

Tribe 2. EUPATORIEÆ.

Heads in broad cymes or panicles.

Pappus merely scabrous, not plumose.

Leaves usually narrowed at the base, not cordate; achene 5-1. Eupatorium. Leaves broad and cordate at the base; achene 10-ribbed or 10-2. Coleosanthus. striate.

Pappus plumose; achenes 8-10-striate. 3. Kuhnia. Heads in elongated spikes or racemes; pappus often plumose.

4. Lacinaria.

4. E. perfoliatum.

1. Eupatorium, 920.

Leaves mostly verticillate in 3's-6's, the upper sometimes opposite; flowers mostly pink or purple.

Inflorescence depressed, flat-topped.

Inflorescence pyramidal, the top rounded.

Leaves mostly opposite, some of the lower sometimes verticillate;

flowers white or blue.

Leaves perfoliate.

Leaves not perfoliate. Leaves narrow at the base, gradually tapering to the petiole.

3. E. altissimum. Leaves broad at the base, abruptly narrowed to the petiole, 5. E. urticæfolium. sometimes cordate.

1. Eupatorium maculatum L. Spotted Joe-pye Weed. Moist ground in the eastern part of the state. Burkett; Ft. Niobrara; Nemaha; Valentine.

2. Eupatorium purpureum L. Joe-pye or Trumpet Weed. In moist soil, mostly in the eastern part of the state. Bellevue; Dakota county; Dismal River; Long Pine; Paddock; Richardson county; Squaw canyon.

3. Eupatorium altissimum L. Tall Thoroughwort. In dry soil in the eastern part of the state. Bellevue; Crete; Grand

Island; Lincoln; Red Cloud; Weeping Water.

4. Eupatorium perfoliatum L. Common Thoroughwort. Common in wet soil over most of the state. Anselmo; Dismal River; Endicott; Franklin; La Platte; Long Pine; Nebraska City; Plainview; Royal; Turkey creek; Valentine.

5. Eupatorium urticæfolium Reichard. In woods in the eastern part of the state. Carns; Crete; Lincoln; Long Pine; Nebraska City.

2. Coleosanthus. 924. ·

1. Coleosanthus grandiflorus (Hook.) Kuntze. In the southern and western part of the state. Banner county; Guide Rock; Red Cloud.

3. Kuhnia. 924.

Pubescence minute; leaves sparingly dentate or entire; heads 10 mm. or less high.

1. K. eupatorioides.

More pubescent; leaves sharply serrate; heads over 10 mm. high.

2. K. glutinosa.

1. Kuhnia eupatorioides L. False Boneset. In dry soil over most of the state. Callaway; Crete; Lincoln; Loup City; Nebraska City; Peru; Weeping Water.

2. Kuhnia glutinosa Ell.
In dry soil all over the state. Banner county; Lincoln; Long Pine; Minden; Rock county; Scotts Bluff county; Thedford; Valentine; Whitman.

4. Lacinaria (Liatris). 925.

Iuvolucral bracts acute.
 Heads 16-60-flowered; bracts with spreading tips.
 L. squarresa.
 Heads 4-6-flowered.

1.5-8 dm. high; bracts appressed, pappus very plumose.

5-15 dm. high; bracts with spreading tips, pappus scarcely plumose.

2. L. punctata.
pappus scarcely plumose.
3. L. pycnostachya.

Involucral bracts obtuse.

Heads 15-45-flowered, usually peduncled.

Heads 5-13-flowered, mostly sessile.

4. L. scariosa.

5. L. spicata.

1. Lacinaria squarrosa (L.) Hill.

Common in prairies all over the state. Anselmo; Dismal River; Indianola; Laurel; Long Pine; Nebraska City; Pishelville; Plummer Ford; Talmage; Valentine.

2. Lacinaria punctata (Hook.) Kuntze. Snake-root. Common in dry soil over most of the state. Ayr; Bellevue; Carns; Deuel county; Hat Creek basin; Laurel; Lincoln; Plummer Ford; Valentine; Whitman; Wymore.

3. Lacinaria pycnostachya (Michx.) Kuntze. In meadows in the eastern part of the state. Lincoln; Nebraska City.

4. Lacinaria scariosa (L.) Hill.

In dry prairies in the eastern part of the state. Crete; Laurel; Long Pine; Nebraska City; St. Paul.

5. Lacinaria spicata (L.) Kuntze.

In bottoms and low prairies throughout most of the state. Atkinson; Benkelman; Carns; Kearney; Scotts Bluff; Valentine.

Tribe 3. ASTEREÆ.

Ray flowers, when present, yellow.

Pappus of scales or awns, sometimes deciduous, never of numer-

ous capillary bristles. Heads small not over 4 mm. high, few-flowered; leaves linear, 1. Gutierrezia.

Heads large, many-flowered, involucre viscid; leaves dentate. 2. Grindelia

Pappus, at least in part, of numerous capillary bristles.

Pappus double, the inner of capillary bristles, the outer much shorter of scales or bristles; heads large; leaves neither evergreen nor spinulose-dentate.
3. Chrysopsis. Pappus wholly of capillary bristles; heads small or leaves ever-3. Chrysopsis.

green or spinulose-dentate.

Heads discoid. (See also Brachyactis and Leptilon.)

Shrubs.

Flowers diœcious. Flowers perfect. Herbs.

17. Baccharis. 4. Chrysothamnus. 15. Erigeron.

Heads radiate.

Leaves spinulose-dentate. 5. Sideranthus.

Leaves entire or toothed, not spinulose-dentate.

Stem low, woody; leaves evergreen. 6. Stenotus.

Stem entirely herbaceous; leaves not evergreen.

Rays not more numerous than the disk-flowers; leaves mostly lanceolate, rarely linear-lanceolate.

Rays more numerous than the disk-flowers; leaves linear-lanceolate. 8. Euthamia.

Ray-flowers blue, pink, purple or white, never yellow.

Pappus a mere crown of a few scales or awn-like bristles.
Plants low, not over 2 dm. high.
9. Tow

9. Townsendia. 10. Boltonia. Plants tall, erect, 6 dm. or more high.

Pappus of numerous capillary bristles.

Rays slightly, if at all, exceeding the pappus. Heads 8-12 mm. broad, bracts in 2-3 series.

13. Brachyactis. Heads about 4 mm. broad, bracts in 1-2 series. 16. Leptilon. Rays conspicuous, longer than the pappus, usually equaling or exceeding the diameter of the disk.

Bracts in several series, the outer shorter, usually well imbri-

cated.

Disk-flowers yellow, turning red, brown or purple. Leaves entire or serrate, the teeth not bristle-tipped.

11. Aster.

Leaves lobed or incised-dentate, the lobes bristle-tipped.

14. Machæranthera. 12. Leucelene. Disk-flowers permanently white. Bracts in 1-2 series, little imbricated; rays numerous, 20-150. 15. Érigeron.

1. Gutierrezia, 927.

1. Gutierrezia sarothræ (Pursh) Britton & Rusby. Broomweed. In dry or rocky soil in the western part of the state. Banner county; Belmont; Callaway; Deuel county; Ft. Niobrara; Hat Creek basin; Pine Ridge; Scotts Bluff county; Valentine.

2. Grindelia, 928.

1. Grindelia squarrosa (Pursh) Dunal. In dry soil over most of the state. Ainsworth; Callaway; Lincoln; Minden; Nebraska City; Rushville; Scotts Bluff county; Wahoo; Weeping Water.

3. Chrysopsis. 929.

1. C. villosa. Involucre strigose; leaves silky, usually sessile. Involucre hirsute, often resinous granuliferous.

Involucre densely hirsute, slightly resinous; heads solitary, sessile. 4. C. pumila.

Involucre sparingly hirsute, resinous.

3. C. horrida. Leaves hispid, not conspicuously resinous.

Leaves conspicuously resinous.

Heads peduncled; leaves sparingly hairy.

Heads subsessile; leaves very hispid. 5. C. hispida. 2. C. stenophylla.

1. Chrysopsis villosa (Pursh) Nutt. In dry soil in the western part of the state. Belmont; Deuel county; Grand Rapids; Kiowa valley; Meadville; Mullen; Valentine; Whitman.

2. Chrysopsis stenophylla (A. Gray) Greene. In dry soil in the western part of the state. Deuel county; Long Pine; Mullen.

3. Chrysopsis horrida Rydb.

In dry soil in the western part of the state. Pumpkin Seed valley; Lawrence Fork.

4. Chrysopsis pumila Greene.

Nebraska, according to Rydberg's Flora of Colorado.

5. Chrysopsis hispida (Hook.) Nutt.

In dry soil in the western part of the state. Deuel county; Long Pine; Riverton.

4. Chrysothamnus. 931.

Involucral bracts not acuminate; heads 12 mm. high; leaves 2-4 1. C. graveolens. mm. wide Involucral bracts subulate tipped; heads 14-20 mm. long; leaves

2. C. howardi. about 2 mm. wide.

1. Chrysothamnus graveolens (Nutt.) Greene. Rayless Goldenrod. On bad-lands and dry hills in the western part of the state. Chadron; Hat Creek basin; Scotts Bluff.

2. Chrysothamnus howardi (Parry) Greene.

In canyons south of Scotts Bluff.

5. Sideranthus (Aplopappus), 932.

Leaves spinescently toothed, not pinnatifid.

Rays wanting; perennial with a woody caudex. 1. S. grindelioides. 2. S. annuus. Rays present; annual.

Leaves pinnatifid.

3. S. spinulosus.

1. Sideranthus grindelioides (Nutt.) Britton.

Eriocarpum grindelioides Nutt.

On dry plains in the western part of the state. Callaway; Banner county; Hat Creek basin.

2. Sideranthus annuus Rydb.

In dry, sandy soil in the western part of the state.

3. Sideranthus spinulosus (Nutt.) Sweet.

Common in dry soil in the western part of the state. Broken Bow; Cambridge; Culbertson; Deuel county; Fairbury; Niobrara; Red Cloud; Thedford; Valentine; Wild Cat mountains.

6. Stenotus, 933.

1. Stenotus armerioides Nutt.

Nebraska, according to Britton's Manual.

7. Solidago, 933.

Goldenrods.

Inflorescence a panicle or thyrsus; not flat-topped.

Leaves not triple-veined.

Outer involucral bracts with spreading tips. 1. S. petiolaris. All the involucral bracts with appressed tips.

Heads not secund on the branches of the inflorescence.

2. S. rigidiuscula.

Heads secund on the branches of the inflorescence.

Racemes few; leaves coarsely serrate. 3. S. ulmifolia. Racemes numerous; leaves crenate-dentate. 8. S. nemoralis.

Leaves triple-veined, i. e., with 2 lateral veins much larger than the rest.

Stems glabrous.

Leaves of the stem lanceolate, sharply serrate. 4. S. serotina. Leaves of the stem linear-lanceolate, entire or sparingly serrate with low teeth. 5. S. glaberrima.

Stems pubescent or scabrous.

Leaves lanceolate.

Plants mostly over 6 dm. high, not yellowish.

Leaves sharply serrate, not cinereous-pubescent.

6. S. canadensis. Leaves less serrate, sometimes all entire, cinereous-pubes-7. S. altissima.

Plants not over 3 dm. high, yellowish canescent, leaves remotely serrate above the middle or entire.

Leaves oblong, oblanceolate or spatulate.

Panicle one-sided, its branches recurved or spreading; leaves obscurely 3-veined. 9. S. nemoralis. Panicle not one-sided, its branches erect; leaves strongly 3-

veined. 10. S. mollis.

Inflorescence a flat-topped corymbose cyme.

11. S. rigida.

8. S. gilvocanescens.

1. Solidago petiolaris Ait.

Red Cloud.

2. Solidago rigidiuscula (T. & G.) Porter. On prairies in the southeastern part of the state. Lincoln; Nebraska City: O'Neill.

3. Solidago ulmifolia Muhl.

On river bottoms in the southeastern part of the state. Nemaha; Richardson county.

4. Solidago serotina Ait. Common in prairies all over the state. Dismal River; Ewing; Lincoln; Minden; Nebraska City; Thedford; Valentine; Wymore.

5. Solidago glaberrima Martens.

Solidago missouriensis Nutt. On dry prairies throughout the state. Bassett; Banner county; Big Sandy creek; Cheyenne county; Franklin; Haigler; Hat Creek basin; Kimball; Kiowa valley; Lincoln; Nebraska City; Plummer Ford; Thedford; Weeping Water.

Canada Goldenrod. 6. Solidago canadensis L. Canada Goldenrod. Common on prairies over the entire state. Callaway; Lincoln, Nebraska City; Plum Creek; Red Cloud; Scotts Bluff county; Seward county.

7. Solidago altissima L. Bassett; Kennedy; Long Pine; Nebraska City; Neligh; Thedford;

8. Solidago gilvocanescens Rydb.

Cody's Lakes.

Grav Goldenrod. 9. Solidago nemoralis Ait. In dry soil in the eastern part of the state. Bellevue; Fairbury; Lancaster county; Long Pine; Minden; Nebraska City; Thedford; Valentine.

Velvety Goldenrod. 10. Solidago mollis Bartl. On dry prairies mostly in the western part of the state. Broken-Bow; Brunswick; Deuel county; Franklin; Hat Creek basin; Kearney; Keyapaha county; Kiowa valley; Lincoln; Lodge Pole; Minden; O'Neill.

Stiff Goldenrod. 11. Solidago rigida L. In dry, sandy soil over most of the state. Cody's Lakes; Kearney; Keyapaha county; Lincoln; Nebraska City; Pine Ridge; Wahoo. Solidago speciosa Nutt, has been found in western Nebraska near

Rushville.

8. Euthamia. 942.

Fragrant Goldenrod. 1. Euthamia graminifolia (L.) Nutt. Common in wet soil over most of the state. Bone Creek valley; Cherry county; Lincoln; Thedford.

9. Townsendia. 944.

1. T. grandiflora. Stems 5-20 cm. high; heads terminal. Stems very short or wanting; heads sessile among the leaves.

1. Townsendia grandiflora Nutt. In dry soil in the western part of the state. Hat Creek basin; Marsland; Pine Ridge; Sioux county; War Bonnet canyon.

2. Townsendia exscapa (Richards) Porter. In dry soil in the western part of the state. Deuel county: Foster: Halsey; McCook; North Platte; Sidney.

10. Boltonia, 945.

1. Boltonia asteroides (L.) L'Her. False Aster. In low, wet places mostly in the eastern part of the state. Hastings; Kearney; Lincoln; Loup City; Minden; Nebraska City; Weeping Water.

11. Aster. 946.

Basal, and sometimes also the cauline, leaves both cordate and petioled; no cordate-clasping leaves.

Plants glandular; heads 10-12 mm. high. 1. A. macrophyllus.

Plants not glandular; heads 5-10 mm. high.

2. A. azureus. Leaves thick, usually all entire.

Leaves thinner, serrate.
Involucre 4-6 mm. high; bracts obtuse. 3. A. cordifolius. Involucre 6-10 mm. high; bracts acute.

Glabrous or nearly so; involucral bracts awn-pointed.

4. A. sagittifolius.

Pale with fine grav pubescence: bracts acute.

5. A. drummondii. Leaves, if cordate, sessile or nearly so, some of them often cordateclasping.

Stems hirsute or hispid-pubescent.

Leaves entire.

Rays 40-50, 10-15 mm. long. Rays 20-30, 6-10 mm. long. Leaves sharply serrate.

6. A. novæ-angliæ. 7. A. oblongifolius. 8. A. puniceus.

Stems glabrous or slightly pubescent in streaks.

Leaves densely silvery-white pubescent on both sides.

13. A. sericeus.

Leaves not silvery pubescent.

Rays blue, violet or purple, rarely white.

Stem leaves, at least the upper, cordate-clasping, lanceolate or oblanceolate.

Outer bracts of the involucre shorter than the inner, not foliaceous. 9. A. lævis.

Outer bracts of the involucre as long as or longer than the inner, foliaceous. 12. A. phyllodes.

Stem leaves, if clasping, linear or linear-lanceolate.

Rays purple, about 12 mm. long. 15. A. nebraskensis. Rays white, violet or purplish, 6-10 mm, long.

Leaves narrowly linear.

Leaves with ciliate margins. 14. A. fendleri. Leaf-margins not ciliate. 18. A. junceus.

Leaves linear-lanceolate to oblanceolate. Heads few; leaves entire or nearly so.

Involucral bracts in 3-5 series. 10. A. adscendens. Involucral bracts in 1-2 series. 11. A. longifolius. Heads numerous, leaves usually serrate.

Disk 1 cm. wide; rays rarely white.

16. A. salicifolius. Disk 6-8 mm. wide; rays generally white.

17. A. paniculatus.

Rays white, 3-8 mm. long. (See also A. lævis and A. longulus.)

Heads 10-25 mm. broad.

Leaves acute or acuminate, often serrate.

Rays 6-8 mm. long; leaves with rough margins.
Disk 1 cm. wide; leaves thickish. 16. A. sali

16. A. salicifolius. 17. A. paniculatus. 19. A. tradescanti. Disk 6-8 mm. wide; leaves thin. Rays 6-8 mm. long. 21. A. commutatus. Leaves obtuse, entire. Heads 6-8 mm. broad, rays 3-4 mm. wide. 20. A. multiflorus.

Large-leaved Aster. 1. Aster macrophyllus L. In woods in the southeastern part of the state. Lincoln; Nebraska City; Peru.

Sky-blue Aster. 2. Aster azureus Lindl. In prairies or open woods in the southeastern part of the state. Weeping Water.

Blue Wood Aster. 3. Aster cordifolius L. In woods in the southeastern part of the state. Nebraska City; Weeping Water.

4. Aster drummondii Lindl. Wooded banks in the southeastern part of the state. Weeping Water.

5. Aster sagittifolius Willd. In dry soil in the southeastern part of the state. Lincoln; Nebraska City; Weeping Water.

6. Aster novæ-angliæ L.

In moist soil in the southeastern part of the state. Burwell; Falls City; Grand Island; Nebraska City; Peru; Valentine.

7. Aster oblongifolius Nutt. On prairies in the eastern part of the state. Antelope county; Lincoln; Minden; Red Cloud; Valentine; Weeping Water.

8. Aster puniceus L. Long Pine; Valentine.

Smooth Aster. In dry soil over most of the state. Belmont; Cass county; Long Pine; Nebraska City; South Bend; Valentine; Weeping Water.

10. Aster adscendens Lindl. In western Nebraska, according to Britton's Manual.

11. Aster longifolius Lam. Newark: Weeping Water.

12. Aster phyllodes Rydb. In the western part of the state. Kimball and Scotts Bluff counties.

Silky Aster. 13. Aster sericeus Vent. Prairies in the eastern part of the state. Laurel; Lincoln; Nebraska City.

14. Aster fendleri A. Gray.

Red Cloud.

15. Aster nebraskensis Britton. In moist soil in the western part of the state. Burwell; Callaway; Long Pine; Minden; Valentine; Whitman.

16. Aster salicifolius Lam. In moist soil in the southeastern part of the state. Nebraska City; Nemaha; Richardson county.

17. Aster paniculatus Lam.

In moist soil, mostly in the eastern part of the state. Kennedy; Lincoln; Nebraska City; Valentine.

18. Aster junceus Ait.

Rush Aster.

Marsh near Kennedy.

19. Aster tradescanti L. Minden.

20. Aster multiflorus Ait.
Common on dry prairies over the entire state. Callaway; Garden county; Kearney; Lincoln; Loup City; Minden; Nebraska City; Neligh; Red Cloud; Wood River.

21. Aster commutatus Torr. & Gray.

On prairies in the western part of the state. Hat Creek basin; Wood River.

12. Leucelene, 965.

1. Leucelene ericoides (Torr.) Greene.

In dry soil in the western part of the state. Alliance: Chadron: Orella; Perkins county.

13. Brachvactis, 966.

1. Brachyactis angusta (Lindl.) Britton. In wet, saline soil. Lincoln.

Ravless Aster.

14. Machæranthera, 966.

Leaves pinnatifid. Leaves incised dentate. 1. M. tanacetifolia. 2. M. sessiliflora.

1. Machæranthera tanacetifolia (H. B. K.) Nees.

In dry soil in the western part of the state. Crawford.

2. Machæranthera sessiliflora (Nutt.) Greene.

In dry soil in the western part of the state. Chadron; Crawford; Hat Creek basin; Kennedy; Merriman; Valentine.

15. Erigeron. 966.

Roots perennial, thick and woody.

Lower leaves lanceolate, oblong or spatulate.

Rays 100-150, violet or purple; stem leaves not linear. Upper leaves much smaller than the lower, linear-lanceolate.

1. E. asper.

Upper leaves not much smaller than the lower, ovate-lanceo-late. 2. E. subtrinervis. Rays 40-60, mostly white; stem leaves linear. 3. E. cæspitosus.

Leaves all linear; rays 40-80.

Hispid or hirsute with spreading bristly hairs.

Rays white. Rays violet or blue, rarely white.

4. E. pumilus. 5. E. concinnus.

Pubescence appressed, silvery. 6. E. canus.

Roots fibrous, not thick or woody; annual or biennial.

Rays 100-150.

Pappus simple, rays pink; plant stoloniferous. 7. E. philadelphicus. Pappus double, the outer very short; plant not stoloniferous. 8. E. divergens.

Rays less numerous.

Low, 1-3 dm. high; leaves entire, linear-spatulate.

9. E. bellidiastrum.

Taller; basal leaves spatulate or oblong, usually serrate.

10. E. ramosus. Stem-leaves nearly all entire. Stem-leaves nearly all sharply serrate. 11. E. annuus. Rough Erigeron.

1. Erigeron asper Nutt. Nebraska, according to Britton's Manual.

Three-nerved Fleabane. 2. Erigeron subtrinervis Rydb. Dry soil in the western part of the state. Hat Creek basin.

3. Erigeron cæspitosus Nutt.

In dry soil in the western part of the state. Belmont; Hat Creek hasin.

4. Erigeron pumilus Nutt. Dry prairies in the western part of the state. Alliance; Box Butte county; Ft. Robinson; Pine Ridge; Sioux county; Valentine; War Bonnet canyon.

5. Erigeron concinnus (H. & A.) T. & G. In the western part of the state. Hat Creek basin.

6. Erigeron canus A. Gray.

In dry soil in the western part of the state. Deuel county.

7. Erigeron philadelphicus L. Common in dry soil in the eastern part of the state. Ashland; Kearney; Minden; Nebraska City; Peru; Plainview; St. Paul; Valentine; Weeping Water.

8. Erigeron divergens T. & G. Banner county; Belmont; Hitchcock county.

9. Erigeron bellidiastrum Nutt. In moist soil in the western part of the state. Crawford; Dismal River; Hat Creek basin; Kennedy; Scotts Bluff; Thedford.

10. Erigeron ramosus (Walt.) B. S. P. Common in fields over most of the state. Cherry county; Kearney county; Lincoln: Nebraska City; Nemaha; Pine Ridge; Plummer Ford; Red Cloud; Sheridan county; St. James; Valentine.

Daisy Fleabane. 11. Erigeron annuus (L.) Pers. In the southeastern part of the state. Louisville; Table Rock: Weeping Water.

16. Leptilon, 969.

1. L. canadense. Tall plants, 7-30 dm. high, rays white. Low plants, 1-3 dm. high or less, rays purple. 2. L. divaricatum.

Horse-weed. 1. Leptilon canadense (L.) Britton. A common weed all over the state. Ainsworth; Crete; Dismal River: Lincoln; Long Pine; Nebraska City; Thedford; Wymore; Weeping Water.

2. Leptilon divaricatum (Michx.) Raf. A common weed in dry soil. Ainsworth: Bone creek; Endicott; Grand Island; Lincoln: Minden: Nebraska City; Plainview; St. Paul; Thedford; Wymore; Weeping Water.

17. Baccharis. 971.

1. Baccharis neglecta Britton. Nebraska, according to Britton and Brown.

Tribe 4. INULEÆ.

Pappus none.

1. Filago.

Pappus of capillary bristles.

Plants diecious, or polygamo-diecious, some heads containing only 2. Antennaria. staminate flowers.

Plants not diœcious, flowers all fertile.

3. Gnaphalium.

1. Filago, 972.

1. Filago prolifera (Nutt.) Britton. Western Nebraska.

2. Antennaria, 973.

Heads several, capitate; plants 5 cm. or more high.

Basal leaves 1-nerved or indistinctly 3-nerved.

Bracts of fertile heads mostly obtuse; plants 6-20 cm. high;

leaves all one-nerved. 1. A. aprica.

Bracts of the fertile heads mostly acute.

Basal leaves dull, not silvery.

Leaves distinctly apiculate; fertile plants 3 dm. high.

2. A. neodioica.

Leaves not apiculate; plants about 15 cm. high.

3. A. campestris.

Basal leaves silvery with appressed silky hairs.

6. A. microphylla. Basal leaves large, distinctly 3-5-nerved. 4. A. plantaginifolia. Heads solitary, terminal: plants 3-4 cm. high. 5. A. dimorpha.

1. Antennaria aprica Greene. Cudweed. In dry soil in the western part of the state. Alliance; Callaway:

Ft. Robinson; Gordon; Harrison; Long Pine; Thedford.

Smaller Cat's-foot.

2. Antennaria neodioica Greene. Burwell: Valentine.

3. Antennaria campestris Rydb. Prairie Cat's-foot. Common on dry prairies. Burwell; Callaway; Long Pine; Lincoln; Nebraska City; Red Cloud.

4. Antennaria plantaginifolia (L.) Richards.

In dry soil in the eastern part of the state. Fairbury; Falls City; Lincoln; Nebraska City; Riverton; Weeping Water.

5. Antennaria dimorpha (Nutt.) T. & G. Low Everlasting. In dry soil in the western part of the state. Chadron: Harrison: Rushville.

6. Antennaria microphylla Rydb. Antennaria parvifolia Nutt.

Nebraska, according to Rydberg's Flora of Colorado.

3. Gnaphalium, 977.

Tall, erect. 3-9 dm. high; inflorescence corymbose. 1. G. obtusifolium. Low, diffuse, less than 2 dm. high; inflorescence capitate.

2. G. palustre.

1. Gnaphalium obtusifolium L. Fragrant Everlasting. In dry soil in the southeastern part of the state. Nebraska City.

2. Gnaphalium palustre Nutt. Mouse-ear. In wet places in the western part of the state. Camp Clarke in Cheyenne county; Grand Rapids.

Tribe 5. HELIANTHEÆ.

Involucral bracts in 2 to several series, when only 2 series the inner and outer of similar texture.

Ray flowers pistillate, producing seeds.

Achenes of the ray-flowers winged, imbricated in 2-3 rows; disk-flowers perfect but not producing seeds. 1. Silphium.

Achenes not winged; disk-flowers producing seeds.

2. Heliopsis. Rays long, yellow. 3. Verbesina. Rays short, nearly white.

Ray flowers neutral, not producing seeds.

Rays rose-purple to nearly white, never yellow; achenes not 6. Echinacea. compressed or winged. Rays yellow or if purple the achenes compressed and winged.

Achenes neither winged nor much compressed.

Receptacle conic or convex, pappus of very small teeth or 4. Rudbeckia.

Receptacle flat, conic or convex, pappus of 2 large scales or awns, sometimes with 2-4 smaller ones. 7. Helianthus.

Achenes compressed and winged.

Receptacle columnar to subulate; leaves divided or parted.

Receptacle convex or conic; leaves serrate, decurrent on the

Involucral bracts imbricated in 2 series, the inner membranous, very different from the outer in texture; rays yellow or none.

Inner bracts distinct or slightly united at the base; rays sometimes lacking.

Pappus of 2-5 downwardly barbed awns or teeth, outer bracts often as long or longer than the inner; rays often lacking.

10. Bidens. Pappus not downwardly barbed, the outer bracts very small.

9. Coreopsis. Inner bracts united to about the middle, the outer much smaller. 11. Thelesperma.

1. Silphium. 980.

Leaves opposite or the upper alternate. Stems square; leaves perfoliate. Stems round; leaves not perfoliate.

1. S. perfoliatum. 2. S. integrifolium. Leaves all alternate, the basal pinnatifid. 3. S. laciniatum. Cup-plant.

1. Silphium perfoliatum L. In wet soil in the eastern part of the state. Indianola; Lincoln; Nebraska City; Turner; Wahoo; Walton; Wymore; Weeping Water. Rosin-weed.

2. Silphium integrifolium Michx. Common in prairies in the eastern part of the state. Franklin; Lincoln: Nebraska City; Newark; Plainview; Red Cloud; Wahoo; Weeping Water; Wymore.

3. Silphium laciniatum L. Compass-plant. Common in low prairies in the eastern part of the state. Foster; Fremont; Lincoln; Nebraska City; Weigand; Wymore; Weeping Water. 2. Heliopsis. 984.

Ox-eye. 1. Heliopsis scabra Dunal. Common in the eastern part of the state. Arapahoe; Callaway; Grand Island; Nebraska City; Niobrara; Valentine; Wahoo; Weeping Water.

3. Verbesina (Eclipta). 984.

1. Verbesina alba L.

Along streams in the southeastern part of the state. Crete; Lincoln.

4. Rudbeckia, 985.

Hispid; leaves sparingly serrate or entire. 1. R. hirta. Glabrous or nearly so; lower leaves pinnately parted or pinnatifid.

2. R. laciniata.

Black-eved Susan. 1. Rudbeckia hirta L. A common weed in the eastern part of the state. Aten; Cherry county; Lincoln; Nebraska City; Newark; New Helena; Pine Ridge; Plainview; Plummer Ford; Valentine.

2. Rudbeckia laciniata L. Tall Cone-flower. In woods and thickets in the southeastern part of the state. Franklin; Lincoln; Nebraska City; Newark; Riverton; Saltillo; Wahoo; Wymore.

5. Ratibida (Lepachys), 988,

Disk twice as long as thick: leaf segments lanceolate. 1. R. pinnata. Disk 3-4 times as long as thick; leaf segments linear.

2. R. columnaris. 1. Ratibida pinnata (Vent.) Barnhart. Cone-flower. Bluffs and ravines along streams in the southeastern part of the state. Bellevue; Nebraska City; Nemaha; Peru; Wymore; Weeping Water.

2. Ratibida columnaris (Sims) D. Don. Prairie Cone-flower. Common in dry soil over most of the state. Anselmo; Aten; Belmont; Broken Bow; Cherry county; Kearney; Lincoln; Mullen; Pine Ridge: Squaw canvon: Valentine.

6. Echinacea (Brauneria). 989.

1. Echinacea angustifolia DC.

Nigger-heads.

Brauneria pallida (Nutt.) Britton. Common on dry prairies throughout the state. Aten; Lincoln; Nebraska City; Squaw canyon; Weeping Water.

7. Helianthus, 990.

Sunflowers.

Disk brownish or dark purple; receptacle flat or nearly so.

Annuals; leaves mostly alternate.

Leaves serrate; bracts of the involucre broadly ovate to oblong, hispidly ciliate. 1. H. annuus. Leaves entire or nearly so; bracts of the involucre lanceolate or

oblong-lanceolate, seldom ciliate. 2. H. petiolaris. Perennials; leaves mostly opposite.

3. H. subribisk yellow; receptacle convex or low conic; perennials. 3. H. subrhomboideus.

Stems glabrous or sometimes pubescent or puberulent above. Leaves narrowed at the base, broadest at about the middle.

10. H. grosseserratus. Leaves rounded or truncate at the base, broadest below the middle.

Leaves sessile or nearly so, divaricate, all opposite.

5. H. divaricatus. Leaves manifestly petioled, ascending, the upper usually al-12. H. decapetalus. ternate.

Stems pubescent or scabrous, at least below.

Leaves, at least the lower, ovate or ovate-lanceolate and abruptly contracted at the base, sometimes gradually narrowed in

All leaves rounded or truncate at the base.

Leaves entire or nearly so; involucral bracts appressed. 4. H. pumilus.

Leaves serrate or serrulate.

9. H. rydbergi. Upper leaves alternate. 11. H. hirsutus. All the leaves opposite. Upper leaves narrowed at the base. 13. H. tuberosus.

Leaves narrowly lanceolate, gradually narrowed at the base. Stems scabrous: leaves very scabrous on both sides, entire or

denticulate. 7. H. maximiliani. Stems hirsute; leaves scabrous above, hirsute beneath, serrate

or denticulate.

Leaves mostly alternate, narrowly lanceolate. 6. H. giganteus. Leaves mostly or all opposite, broader and more sharply 8. H. subtuberosus. serrate.

Common Sunflower. 1. Helianthus annuus L. A common weed throughout the state. Dismal River; Lincoln; Minden; Nebraska City; Valentine; Weeping Water.

2. Helianthus petiolaris Nutt. Prairie Sunflower. Common in dry, sandy soil over the whole state, often as a weed in cultivated ground. Belmont; Broken Bow; Box Butte county; Chelsea; Minden; Mullen; Plattsmouth; Thedford; Wahoo; Whitman.

3. Helianthus subrhomboideus Rydb.

Common in prairies over most of the state. Cherry county; Franklin; Keyapaha county; Minden; Sioux county; Whitman.

4. Helianthus pumilus Nutt.

Nebraska, according to Nelson's Manual of Rocky Mountain Botany.

5. Helianthus divaricatus L. Callaway; Weeping Water.

6. Helianthus giganteus L.

In wet soil, mostly in draws and along streams and ditches. Halsey; Lincoln: Thedford; Valentine.

7. Helianthus maximiliani Schrad.

Common in prairies throughout the state. Bone creek; Franklin; Kearney; Lincoln; Minden; Nebraska City; Red Cloud; Valentine; Weeping Water.

8. Helianthus subtuberosus Bourgeau.

Ainsworth; Atkinson; Long Pine; Red Cloud; Valentine.

9. Helianthus rydbergi Britton.

In the sand-hill regions. Hooker county.

10. Helianthus grosseserratus Martens. In moist soil in the eastern part of the state. Callaway; Crete; Lincoln; Mullen; Nebraska City; Newark; Plainview; Wahoo; Weeping Water.

11. Helianthus hirsutus Raf. In the southeastern part of the state. Bellevue; Nebraska City; Weeping Water.

12. Helianthus decapetalus L.

Crete; Nemaha; Newark; Valentine; Weeping Water.

13. Helianthus tuberosus L.

Jerusa Jerusalem Artichoke. 13. Helianthus tuberosus L. In moist soil along streams. Frequently cultivated for its tubers and often persists as a weed. Ayr; Callaway; Chadron; Ewing; Franklin; Long Pine; Nebraska City; Republican City; Valentine.

8. Ridan (Verbesina). 996.

1. Ridan alternifolius (L.) Britton. Common in woods in the eastern part of the state. Lincoln; Nebraska City; Weeping Water.

9. Coreonsis, 997.

Rays vellow with brown bases or entirely brown; leaves pinnately 1. C. tinctoria.

Rays entirely yellow; leaves not pinnately parted.

Leaves 3-lobed to below the middle, lobes oblong-linear. 2. C. palmata.

Leaves 3-lobed nearly or quite to the base, lobes filiform-linear. 3. C. verticillata.

1. Coreopsis tinctoria Nutt. A common weed in waste places throughout most of the state. Atkinson; Fairbury; Fillmore county; Franklin; Lincoln; Minden; Red Cloud; Spencer.

2. Coreopsis palmata Nutt.

In woods and prairies in the southeastern part of the state. El-wood: Nebraska City; Nemaha; Richardson county; Talmage; Weeping Water.

3. Coreopsis verticillata L.

High prairies, common. Alliance; Crawford; Weeping Water.

10. Bidens. 1000.

Leaves lanceolate, serrate, not pinnately parted or dissected.

Heads nodding after flowering. 2. B. cernua.

Heads remaining erect.

Rays large, commonly 25 mm. long or more. 1. B. lævis.

Rays small or wanting.

Bracts foliaceous; stem purple. 3. B. comosa. Bracts not foliaceous; stem straw colored. 4. B. connata.

Leaves, at least some of them, pinnately parted or dissected.

Rays small or wanting.

Achenes flat; awns 2, nearly as long as the achene.

5. B. frondosa. Achenes linear; awns 4, achene several times as long as its 6. B. bipinnata.

Rays large and conspicuous.

Achenes cuneate or linear-cuneate, less than 2 mm. wide, 5-7 mm. long. 7. B. tr Achenes 2-4 mm. wide, with thin scarious margins. 7. B. trichosperma.

Outer bracts 8-10, not longer than the inner, smooth or ciliate. 8. B. aristosa.

Outer bracts 12-20, longer than the inner, coarsely hispid.

9. B. involucrata.

1. Bidens lævis (L.) B. S. P. Smooth Bur-marigold. In meadows and along streams. Ainsworth; Banner county; Grand Island; Lawrence Fork; Lincoln; Mullen; Nebraska City; Roca.

2. Bidens cernua L. Nodding Bur-marigold. Common in wet soil throughout the state. Callaway; Ewing; Greeley; Lincoln; Newark; Roca.

3. Bidens comosa (A. Gray) Wiegand. Pitchforks, Tickseed. In moist soil in the eastern part of the state. Kearney; Kennedy; Lincoln; Nebraska City; Red Cloud; Thedford; Valentine.

4. Bidens connata Muhl.

In swamps or moist soil. Nebraska, according to Britton & Brown.

5. Bidens frondosa L. Black Beggar-ticks. Common in wet soil over most of the state. Kearney; Kennedy; Lincoln; Nebraska City; Red Cloud; Thedford; Valentine.

6. Bidens bipinnata L. Spanish Needles. Weeping Water.

7. Bidens trichosperma (Michx.) Britton. Tall Tickseed. Common in stream-marshes over most of the state. Black Island; Keyapaha county; Long Pine; Royal; Thedford.

8. Bidens aristosa (Michx.) Britton.
Long Pine; Nebraska City; Valentine.
9. Bidens involucrata (Nutt.) Britton

9. Bidens involucrata (Nutt.) Britton. In wet soil. Endicott; Falls City; Nemaha.

11. Thelesperma. 1003.

Rays large, pappus scales not much longer than the width of the achene.

Leaves not rigid, their segments filiform.

1. T. trifidum.
Leaves rigid, their segments linear or filiform; perennial.

Rays small or wanting, pappus awns longer than the width of the achene.

2. T. intermedium.

3. T. gracile.

1. Thelesperma trifidum (Poir.) Britton.

In dry soil in the western part of the state. Box Butte county; Crawford; Long Pine.

2. Thelesperma intermedium Rydb.

In dry soil in the western part of the state. Alliance; Banner county; Crawford.

3. Thelesperma gracile (Torr.) A. Gray.

In dry soil, common in western part of the state. Cherry county; Dismal River; Franklin; Kearney; Red Cloud; Shelton; Thedford; Valentine.

Tribe 9. AMBROSIEÆ.

Staminate and pistillate flowers in the same heads, the pistillate marginal.

1. Iva.

Staminate and pistillate flowers in separate heads, the pistillate 1-4 in a nut-like or bur-like involucre.

Involucre of the staminate heads of united bracts, that of the pistillate never with hooked bristles.

Pistillate involucre 1-flowered, usually armed with 4-8 tubercles 2. Ambrosia. or spines in a single series.

Pistillate involucre with 1-4 flowers, armed with several to numerous prickles in more than one series.

3. Gaertneria. Involucre of the staminate heads of separate bracts; that of the pistillate heads 2-flowered, covered with numerous hooked 4. Xanthium. ĥristles.

1. Iva. 908.

Heads in the axils of leaves or bracts. 1. I. axillaris. Perennials; leaves entire or nearly so. Annuals; leaves coarsely serrate. Heads not in the axils of leaves or bracts.

2. I. ciliata. 3. I. xanthiifolia. Marsh-elder. In alkaline soil in the western part of the state. Scotts Bluff

county.

1. Iva axillaris Pursh.

lateral.

2. Iva ciliata Willd.
In moist soil in waste places in the southeastern part of the state.
Lincoln; Minden; Red Cloud; Republican City.

3. Iva xanthiifolia (Fresen.) Nutt. In wet soil and waste places throughout the state. Bellevue; Lincoln; Meadville; Nebraska City; Plainview; Red Cloud; Thedford; Valentine: Whitman.

2. Ambrosia, 910.

Leaves palmately 3-5-lobed or undivided, all opposite. 1. A. trifida. Leaves 1-2-pinnatifid, the upper alternate.

Annuals; fruiting involucre ending in a beak surrounded by 4-6 2. A. elatior.

Perennials by creeping root-stocks; fruiting involucre ending in a sharp point surrounded by about 4 tubercles or unarmed. 3. A. psilostachya.

Giant Ragweed. 1. Ambrosia trifida L. A common weed in moist soil over most of the state. Cody's Lakes; Holt county; Lincoln; Nebraska City; Wahoo; Wymore; Weeping

Water. Annual Ragweed. 2. Ambrosia elatior L. Ambrosia artemisiæfolia L.

Common as a weed in dry soil throughout the state. Long Pine; Minden; Valentine; Weeping Water.

Western Ragweed. 3. Ambrosia psilostachya DC. A common weed in dry soil all over the state. Often abundant in dry pastures. Alliance; Dismal River; Lincoln; Nebraska City; Valentine; Weeping Water; Whitman.

3. Gaertneria, 911.

Leaves not densely white-tomentose beneath; annuals.

1. G. acanthicarpa.

Leaves densely white-tomentose beneath; perennials. Leaves bipinnatifid, terminal segment not larger than the lateral. 2. G. discolor. Leaves pinnately divided, terminal segment much larger than the 3. G. tomentosa. 1. Gaertneria acanthicarpa (Hook.) Britton. Bur-ragweed. In moist soil in the western part of the state. Crawford: Merriman: Porter.

2. Gaertneria discolor (Nutt.) Kuntze.

In dry soil in the western part of the state. Dix.

3. Gaertneria tomentosa (A. Gray) Kuntze.

In low prairies along streams. Axtell; Franklin; Hastings; Minden.

4. Xanthium, 911.

Burs 15-25 mm. long, about half as thick or less.

1. X. pennsylvanicum.

Prickles hispid to about the middle.

2. X. commune. Leaves lobed; burs commonly solitary. 3. X. speciosum. Leaves dentate; burs commonly clustered. Burs 10-15 mm. long, 6-9 mm. thick, its prickles bristly-hispid nearly to the hooked apex.

4. X. glanduliferum.

Cocklebur.

1. Xanthium pennsylvanicum Wallr. Not common, most of our cockleburs belong to the next species.

Kennedy; Red Cloud; Valentine.

Common Cocklebur. 2. Xanthium commune Britton. A common weed all over the state. Grand Island; Lincoln; Red Cloud; St. Paul; Valentine; Wahoo.

3. Xanthium speciosum Kearney.

Nebraska, according to Britton and Brown.

Glandular Clot-bur. 4. Xanthium glanduliferum Greene. Fremont; Long Pine; Nebraska City; Red Cloud; Whitman.

Tribe 7. HELENIEÆ.

Bracts of the involucre petaloid with scarious tips and margins.

Leaves pinnatifid; flowers white or yellow, rays none.

1. Hymenopappus. Leaves entire; flowers purple, rays present or wanting. 2. Polypteris. Bracts of the involucre herbaceous.

Leaves palmately divided into 2-5 narrow segments.

3. Picradeniopsis.

Leaves not palmately divided.

Foliage not dotted with oil-glands. Receptacle naked, rays yellow.

Bracts of the involucre appressed; leaves not decurrent on 4. Tetraneuris. the stem. Bracts of the involucre spreading or reflexed at maturity;

5. Helenium. leaves usually decurrent on the stem. Receptacle bristly, rays in our species purple, at least at the 6. Gaillardia.

Foliage dotted with oil glands.

Leaves dissected; involucral bracts partly united. 7. Boebera. 8. Pectis. Leaves entire, linear; bracts separate.

1. Hymenopappus. 1006.

Corolla white; heads 8-12 mm. broad; biennials. Achene puberulent; pappus shorter than the width of the achene. 1. H. corymbosus.

Achene densely villous; pappus as long as the width of the achene. 2. H. tenuifolius.

Corolla yellow; heads 12-25 mm. broad; perennials. 3. H. filifolius.

1. Hymenopappus corymbosus T. & G. Nebraska, according to Britton's Manual.

2. Hymenopappus tenuifolius Pursh. Common in sandy soil. Anselmo; Dismal River; Foster; Franklin; Phelps county; Valentine.

3. Hymenopappus filifolius Hook. Common in dry sandy prairies. Broken Bow; Box Butte county; Deuel county; Cedar county; Merriman; Mullen; Pine Ridge; Sioux county; Thedford.

2. Polypteris (Othake). 1007.

1. Polypteris hookeriana (T. & G.) A. Gray. On dry prairies in the western part of the state. Hat Creek basin; Lincoln; Royal; Whitney.

3. Picradeniopsis. 1008.

1. Picradeniopsis oppositifolia (Nutt.) Rydb. Whitney.

4. Tetraneuris (Picradenia). 1008.

Leaves with narrowly linear blades, 1-2 mm. wide; involucre 10-12 mm. wide.

1. T. stenophylla.

Leaves linear or linear-lanceolate, 2-6 mm. wide; involucre 15-35 mm. wide.

2. T. acaulis.

1. Tetraneuris stenophylla Rydb.

In dry soil in the western part of the state. Franklin.

2. Tetraneuris acaulis (Nutt.) Greene.

In dry soil in the western part of the state. Alliance; Belmont; Banner county; Harrison; Pine Ridge; Scotts Bluff; Sioux county.

5. Helenium, 1010.

1. Helenium autumnale L. False Sunflower, Sneeze-weed. In wet meadows and along streams and ditches. Bellevue; Dismal River; Ft. Kearney; Newark; Plainview; Plattsmouth; Scotts Bluff county; Valentine.

6. Gaillardia. 1011.

1. Gaillardia pulchella Foug. In dry soil in the western part of the state. Franklin; Lincoln; Red Cloud; Riverton.

7. Boebera (Dysodia). 1012.

1. Boebera papposa (Vent.) Rydb. Stink-weed; Fetid Marigold. Common all over the state. Brock; Franklin; Grand Rapids; Lincoln; Minden; Nebraska City; Plainview; Red Cloud; Scotts Bluff county; Valentine; Wymore.

8. Pectis, 1012.

1. Pectis angustifolia Torr.
In dry soil in the western part of the state. Deuel county; Ft. Niobrara.

Tribe 8. ANTHEMIDEÆ.

Rays usually present, white or pink; receptacle chaffy.
Achenes flattened; heads small.
Achenes terete; heads large, 25 cm. or more broad.

1. Achillea.
2. Anthemis.

Rays wanting or rudimentary, receptacle not chaffy.

Heads corymbed; pappus a short crown.

Heads racemose, spicate or panicled; pappus none.

Tanacetum.
4. Artemisia.

1. Achillea. 1013.

1. Achillea millifolium L. Yarrow, Milfoil. A common weed in the eastern part of the state. Fairbury; Hat Creek basin; Lincoln; Nebraska City; Ponca; Red Cloud.

2. Anthemis. 1014.

1. Anthemis cotula L. Mayweed, Dog-fennel. Common in waste places in the western part of the state. Brown county; Lincoln; Nebraska City; St. Paul.

4. Artemisia. 1017.

Marginal flowers pistillate, central flowers perfect, mostly herbs.

Central flowers sterile, not producing seeds, mostly with entire styles.

Herbs, sometimes woody at the base; heads 2-4 mm. broad.

Leaves pinnately dissected into narrow linear lobes.

Heads 2 mm. broad, in a broad panicle.

Heads 4 mm. broad, in a narrow panicle.

Leaves linear, mostly entire, sometimes 3-cleft or the lower more divided.

Leaves glabrous.

Leaves finely and densely pubescent.

Shrubs, heads small, numerous, about 1 mm. broad.

Central flowers fertile, producing seeds, their styles 2-cleft.

Receptacle with long woolly hairs.

Plants 2-3 dm. high, leaf segments linear-filiform, less than 1

6. A. frigida.

Plants 6 19 dre high leaf segments chlorg or linear-chlorg

Plants 6-12 dm. high, leaf segments oblong or linear-oblong, over 1 mm. broad. 7. A. absinthium.

Receptacle glabrous, or slightly pubescent.

Leaves green, glabrous or pubescent, dissected.

Heads 4 mm. broad; perennials.

8. A. abrotanum.

Heads 2 mm. broad; annuals or biennials.

Heads in a loose panicle, if leafy bracted, the bracts exceeded by the branches of the inflorescence. 9. A. annua. Heads in axillary clusters forming leafy spikes, the clus-

Heads in axillary clusters forming leary spikes, the clusters ter much exceeded by the leaves.

10. A. biennis.

Leaves densely white canescent or tomentose, at least beneath.

Leaves deeply pinnatifid, the segments incised. 11. A. vulgaris.

Leaves not pinnatifid, lanceolate or linear, rarely 3-5-parted.

Leaves all entire.

Leaves linear, elongated, 5-12 cm. long, at length glabrous above.

13. A. longifolia.

Leaves lanceolate, shorter, 5-8 cm. long, tomentose on both sides.

12. A. gnaphalodes.

Lower leaves lobed. 12. A. ghaphaistes. 14. A. ludoviciana.

Flowers all perfect; all producing seeds; shrubs. Leaves cuneate, 3-toothed or 3-lobed.

Leaves linear, entire.

15. A. tridentata. 16. A. cana.

1. Artemisia caudata Michx. Wild Wormwood. In dry soil in the western part of the state. Grand Island; Long Pine; Riverton.

2. Artemisia canadensis Michx. Canada Wormwood. Common in dry soil in the western part of the state. Banner county; Deuel county; Hat Creek basin; Long Pine; Minden; Thedford.

3. Artemisia dracunculoides Pursh. In dry prairies throughout the state. Deuel county; Chadron; Lincoln; Nebraska City; Scribner; Walton; Weeping Water.

4. Artemisia glauca Pall. Ft. Robinson.

5. Artemisia filifolia Torr. On dry prairies in the western part of the state. Antelope county; Box Butte county; Callaway; Crawford.

6. Artemisia frigida Willd. Common in dry soil in the western part of the state. Banner county; Belmont; Box Butte county; Hat Creek basin; Long Pine; Thedford.

7. Artemisia absinthium L. Common Wormwood. Sometimes escapes from gardens. Nebraska City.

8. Artemisia abrotanum L. Nebraska, according to Britton's Manual.

9. Artemisia annua L. In woods. Riverton.

10. Artemisia biennis Willd. A common weed in the eastern part of the state. Kennedy; Lincoln; Nebraska City; Red Cloud; Valentine; Wahoo; Whitman.

11. Artemisia vulgaris L. Grand Island. Common Mugwort.

12. Artemisia gnaphalodes Nutt. Common on dry prairies all over the state. Brown county; Cherry county; Kearney; Kimball; Lincoln; Nebraska City; Thedford.

13. Artemisia longifolia Nutt. In dry soil in the western part of the state. Chadron.

14. Artemisia ludoviciana Nutt. Lincoln; St. Paul.

15. Artemisia tridentata Nutt. Common Sagebrush. In dry soil in the northwestern part of the state. Hat Creek basin; Chadron.

16. Artemisia cana Pursh. Hoary or Smaller Sagebrush. In dry soil in the northwestern part of the state. Alliance; Crawford; Glen; Hat Creek basin; Kiowa Valley.

Tribe 9. SENECIONEÆ.

Leaves opposite, rays yellow.

1. Arnica.

Leaves alternate.

Rays none, flowers white or whitish.

Marginal flowers pistillate, the central ones perfect, plants with a rank smell.

2. Erechtites.

All the flowers perfect, sap milky.

3. Mesadenia.

Rays present, yellow.

4. Senecio.

1. Arnica. 1022.

1. Arnica cordifolia Hook.

Western Nebraska, according to Britton's Manual.

2. Erechtites. 1023.

1. Erechtites hieracifolia (L.) Raf.
In the eastern part of the state, not common. Lincoln.

n.

Pilewort.

3. Mesadenia (Cacalia). 1023.

Glaucous; stem terete; leaves lobed or incised.

1. M. atriplicifolia.

Green, not glaucous; stem striate angled; leaves entire or denticulate, not lobed.

2. M. tuberosa.

1. Mesadenia atriplicifolia (L.) Raf. Pale Indian Plantain. In woods in the eastern part of the state. Nebraska City; Richardson county.

2. Mesadenia tuberosa (Nutt.) Britton. Indian Plantain. In low prairies in the eastern part of the state. Lincoln; Nebraska City; Wahoo.

4. Senecio. 1024.

Groundsels.

Basal leaves neither linear nor parted into linear segments.

Heads 10-14 mm. high; plant tomentose when young, soon glabrous.

1. S. integerrimus.

Heads 6-10 mm. high; stems often persistently tomentose.

Basal leaves entire or rarely somewhat repand, densely and persistently white-tomentose to the inflorescence. 2. S. canus.

Basal leaves at least some of them, pinnatified or crenate.

Basal leaves, at least some of them, pinnatifid or crenate.

Some of the basal leaves pinnatifid, persistently tomentose.

3. S. plattensis.

Basal leaves crenate, often purple; leaves glabrous or nearly so; stems often woolly, especially below. 4. S. pauperculus. Basal leaves linear or parted into linear segments.

Basal leaves linear-cuneate, 4-6 mm. wide, the upper leaves usually lacinists or ninnatifid 5. S. densus.

laciniate or pinnatifid.

All the leaves linear or parted into linear segments.

Leaves all linear, entire, 1-3 mm. wide.

6. S. spartioides.

Leaves, at least some of them, parted into 3-9 linear segments.

7. S. riddellii.

1. Senecio integerrimus Nutt. In moist soil in the eastern part of the state. Ainsworth; Lincoln; Ponca; Valentine; Whitney.

2. Senecio canus Hook. Senecio purshianus Nutt. In dry soil in the western part of the state. Belmont; Freeport; Hat Creek basin; Pine Ridge; Sidney.

3. Senecio plattensis Nutt.

On prairies throughout the state. Callaway; Dawson; Ewing; Fairbury; Lincoln; Naponee; Plainview.

4. Senecio pauperculus Michx. Senecio balsamitæ Muhl.

In prairies throughout the state. Emerson; Nebraska City.

5. Senecio densus Greene.

Senecio compactus (A. Gray) Rydb. In dry prairies in the western part of the state. Callaway; Long Pine; Minden; Sheridan county; Thedford; Valentine.

6. Senecio spartioides T. & G.

In dry soil in the western part of the state. Chradon; Harrison;

7. Senecio riddellii T. & G.

Senecio fremontii (T. & G.) Rydb.

In dry soil in the western part of the state. Callaway; Crawford; Brown county; Lawrence Fork; Valentine.

Tribe 10. CYNAREÆ.

Involucral bracts hooked at the tip; leaves not bristly. 1. Arctium. Involucral bracts not hooked at the tip.

Leaves very spiny. Leaves not spiny.

2. Carduus. 3. Centaurea.

1. Arctium, 1029.

1. Arctium minus Schk. Common Burdock. Introduced in the eastern part of the state. Crete; Lincoln; Peru; Talmage.

2. Carduns, 1030.

Thistles.

Bracts of the involucre, at least the outer, strongly prickly pointed, heads all with perfect flowers, over 25 mm. broad.

All the involucral bracts prickly pointed. 1. C. lanceolatus. Inner bracts of the involucre merely acuminate or appendaged. Leaves glabrous, hispid or floccose above, tomentose beneath.

Leaves entire or lobed, the lower sometimes pinnatifid.

2. C. altissimus. Leaves deeply pinnatifid into linear or lanceolate segments. Leaves floccose but green above, strongly spiny.

3. C. flodmanii. Leaves glabrous above, weakly spiny. 4. C. discolor. Leaves tomentose on both sides, or becoming glabrous above.

Leaves pinnatifid.

Spines of involucre as long as the bracts, yellow.

Flowers pink or purple. 5. C. undulatus. Flowers yellow. 6. C. plattensis. Spines of involucre as long as the bracts, yellow.

7. C. ochrocentrus. Leaves entire or undulate. 8. C. nebraskensis.

Bracts of the involucre not strongly prickly pointed; heads small, not over 25 mm. broad; diœcious. 9. C. arvensis.

Common or Bull Thistle. 1. Carduus lanceolatus L. Introduced in the southeastern part of the state. Nebraska City; Weeping Water.

Tall Thistle. 2. Carduus altissimus L. Common in woods and along roadsides in the eastern part of the state. Ainsworth; Dismal River; Holt county; Lincoln; Nebraska City: Newark: Peru: Valentine.

3. Carduus flodmanii Rydb.

In river bottoms and meadows. Arcadia; Minden; Newark; Antelope

4. Carduus discolor (Muhl.) Nutt. Field Thistle. Common over most of the state. Gordon; Grand Island; Red Cloud: Scotts Bluff: Weeping Water.

5. Carduus undulatus Nutt. White Thistle. On plains and prairies throughout the state. Ainsworth; Boelus; Deuel county; Niobrara; Red Cloud; St. Paul; Squaw canyon; Utica.

6. Carduus plattensis Rydb.

In the sand-hills. Box Butte county; Glen; Kennedy; Minden; O'Neill: Paddock: Thedford: Valentine.

7. Carduus ochrocentrus (A. Gray) Greene. Callaway; Indianola; Long Pine; Minden; Riverton.

8. Carduus nebraskensis Britton.

In the western part of the state. Scotts Bluff.

Canada Thistle. 9. Carduus arvensis (L.) Robs. Introduced in the eastern part of the state. Arlington; Lincoln; Nebraska City; Omaha; Plainview; St. Paul. Forms with soft bristles were reported from Bethany and College View.

3. Centaurea. 1034.

Bracts fimbriate, not ending in stiff spines.

Leaves entire. Leaves pinnatifid. Bracts ending in stiff spines.

1. C. cyanus. 2. C. maculosa. 3. C. solstitialis. Blue-bottle.

1. Centaurea cyanus L. Cultivated and sometimes escapes.

2. Centaurea maculosa Lam. Introduced and spreading along roadsides near Brunswick and east of Plainview.

3. Centaurea solstitialis L. Introduced, but rare. Crete; Davey. Star Thistle.

Tribe 11. CICHORIEÆ.

Pappus of small scales, much shorter than the achenes; flowers blue 1. Cichorium. or white

Pappus of bristles at least as long as the body of the achene.

Stems leafy or with several flowers.

Heads 5-10-flowered, flowers pink or purple.

Lower leaves runcinate pinnatifid; pappus plumose. 2. Ptiloria. All the leaves entire, the upper often reduced to scales: 8. Lygodesmia. pappus simple.

Heads many-flowered or the flowers yellow.

Achene and pappus 7-8 cm. long.

Achene and pappus much shorter.

3. Tragopogon. 7. Lactuca.

Flowers blue.

Flowers yellow, orange or red.

Achenes distinctly beaked. Achenes not beaked.

7. Lactuca.

Inflorescence not a spike-like thyrsus; heads usually many-flowered.

Achenes flattened; stem leaves auriculate-clasping. 6. Sonchus.

Achenes terete or prismatic; stem leaves not auriculate-clasping.

Involucral bracts with scarious margins; receptacle slightly bristly. 4. Malacothrix. Involucral bracts not scarious margined; recepta-

cle naked.

Pappus soft, white; achenes usually narrowed 10. Crepis. above. Pappus of stiff, brown or brownish bristles; achenes not narrowed above. 11. Hieracium.

Inflorescence in our species a spike-like thyrsus; heads 12-16-flowered. 12. Nabalus. heads 12-16-flowered.

Acaulescent plants; scapes 1-flowered. Leaves pinnatifid or sinuate-dentate. Leaves mostly entire.

5. Taraxacum. 9. Agoseris.

1. Cichorium, 890.

Chicory. 1. Cichorium intybus L. Frequently found in alfalfa fields. Brunswick; Kennedy; Lincoln; O'Neill.

2. Ptiloria (Stephanomeria). 894.

Pappus plumose to the base, white. Pappus merely scabrous at the base, brown.

1. P. ramosa. 2. P. pauciflora.

1. Ptiloria ramosa Rydb.

In dry soil in the western part of the state. Scotts Bluff; Sioux county.

2. Ptiloria pauciflora (Torr.) Raf. Nebraska?

3. Tragopogon. 894.

Flowers yellow. Flowers blue.

1. T. pratensis. 2. T. porrifolius.

1. Tragopogon pratensis L. Yellow Goat's-beard. In waste places in various parts of the state. Blue Hill; Grand Island: Minden: Ord: Plainview.

2. Tragopogon porrifolius L. Ovster Plant: Salsify. In wet places. Blue Hill; Lincoln; Minden.

4. Malacothrix, 895.

1. Malacothrix sonchoides (Nutt.) T. & G. Western Nebraska, according to Britton's Manual.

5. Taraxacum (Leontodon). 896.

Outer bracts reflexed, not glaucous; heads 3-5 cm. broad; achenes 1. T. taraxacum. brownish green. Bracts spreading or ascending, glaucous; heads not over 2.5 cm.

2. T. erythrospermum. broad: achenes red.

1. Taraxacum taraxacum (L.) Karst. Common Dandelion. A common weed all over the state, especially in lawns. Crete; Lincoln; Minden; Red Cloud; Wahoo; Weeping Water.

2. Taraxacum erythrospermum Andrz. Red-seeded Dandelion. More recently introduced, but common in many places. Hastings; Lincoln; Minden; Plainview; Red Cloud; St. Paul.

6. Sonchus, 896.

Leaves with acute auricles; achenes transversely wrinkled.

1. S. oleraceus.

Leaves with rounded auricles; achenes not transversely wrinkled. 2. S. asper.

Milk-thistle. 1. Sonchus oleraceus L.

Lexington: Lincoln: Pine Ridge.

Sow-thistle. 2. Sonchus asper (L.) All. A common weed throughout the state. Central City; Hastings; Hat Creek basin; Kearney; Lincoln; Nebraska City; Weeping Water.

7. Lactuca. 897.

Flowers yellow; beaks of the achenes as long as the body.

Margins of the leaves, and often also the midribs, spiny.

Heads 6-12-flowered, involucre 8-12 mm. high; achene gradually tapering to the beak. 1. L. virosa. Heads 12-20-flowered, involucre 10-20 mm. high; achene abruptly 2. L. ludoviciana. narrowed to the beak.

Margins of the leaves not spiny. 3. L. canadensis. Flowers blue or violet; achenes beakless or beak shorter than the body.

4. L. pulchella. Achenes flat; involucre 15-20 mm. high. Achenes thicker, slightly compressed; involucre 10-12 mm. high. Achenes not beaked; leaves not pinnatifid. 5. L. villosa. 6. L. floridana. Achenes short beaked; leaves pinnatifid.

Prickly Lettuce, Horse-thistle. 1. Lactuca virosa L. A common weed in the eastern part of the state. Minden; Nebraska City; Red Cloud; Republican City.

Western Wild Lettuce. 2. Lactuca ludoviciana (Nutt.) DC. A common weed all over the state. Banner county; Cherry county; Franklin; Grand Island; Minden; Mullen; Nebraska City; Pishelville; Plummer Ford; Weeping Water.

Wild Lettuce. 3. Lactuca canadensis L. A common weed throughout the state. Cherry county; Long Pine; Nebraska City; Pishelville; Plummer Ford; Sioux county; St. Paul.

Blue Lettuce. 4. Lactuca pulchella (Pursh) DC. Throughout the state. Cherry county; Brown county; Lincoln; Mullen; Nebraska City; Niobrara; Sioux county; Weeping Water.

5. Lactuca villosa Jacq.

Crawford; Lincoln; Nebraska City; Saltillo.

6. Lactuca floridana (L.) Gaertn.
In waste places, roadsides, etc. Crete; Hastings; Lincoln; Weeping Water

8. Lygodesmia. 899.

Heads solitary at the ends of the branches; leaves short.
Heads racemose; leaves elongated linear, the lower 7 cm. or more long.

2. L. rostrata.

1. Lygodesmia juncea (Pursh) D. Don Skeleton-weed. Common in prairies throughout the state. Anselmo; Cherry county; Freeport; Grand Island; Kearney; Lincoln; Minden; Mullen; Natick; Sioux county; Valentine.

2. Lygodesmia rostrata A. Gray. Less common than the last. Kennedy; Long Pine; Minden; Thedford; Valentine.

9. Agoseris. 900.

Scapes smooth, longer than the leaves; achenes beaked.

Achenes 10-12 mm. long; leaves 4-20 mm. wide.

1. A. glauca.

Achenes 8 mm. long; leaves narrowly linear, 2-5 mm. wide.

Scapes tomentose, at least above, not longer than the leaves; achenes merely contracted above.

2. A. parviflora.
3. A. cuspidata.

1. Agoseris glauca (Pursh) Greene. Nebraska City.

2. Agoseris parviflora (Nutt.) Greene. In dry soil in the western part of the state.

3. Agoseris cuspidata (Pursh) D. Dietr. False Dandelion. Nothocalais cuspidata (Pursh) Greene.
In dry soil over most of the state. Alliance; Crete; Chadron; Deuel county; Ft. Robinson; Lincoln; McCook; Nebraska City; Thedford; Weeping Water.

10. Crepis. 901.

Herbage green, not cinereous or scurfy.
Involucre glabrous, plant glaucous.
Involucre pubescent, plants not glaucous.
Leaves all basal.
Stem leafy.

Herbage cinereous-puberulent, or scurfy.

C. glauca.
 C. runcinata.

3. C. tectorum.
4. C. intermedia.

Crepis glauca (Nutt.) T. & G.
 Moist soil in the western part of the state. Rushville.

Crepis runcinata (James) T. & G.
 Moist soil in the western part of the state. Callaway; Cheyenne county; Sheridan county; Simeon; Valentine.

3. Crepis tectorum L.

In the foot-hills of the western part of the state. Chadron.

4. Crepis intermedia A. Gray.
Dry soil in the western part of the state. Harrison.

11. Hieracium, 903.

Hawkweeds.

Leaves mostly or all basal; stem glabrous, or nearly so.

1. H. venosum.

Stem leafy, rarely glabrous. Principal bracts in 2-4 series.

Principal bracts in 1 series.

2. H. scabriusculum.

Stem hirsute or hispid, achene columnar.

Stem and leaves covered with long brown hair; achenes spindle-shaped.

4. H. longipilum.

Rattlesnake Weed.

1. Heiracium venosum L.

Rare in dry waste places. Lincoln.

2. Heiracium scabriusculum Schwein. Squaw canyon.

3. Heiracium scabrum Michx.

Rough Hawkweed.

4. Heiracium longipilum Torr. Hairy Hawkweed. In the southeastern part of the state. Edgar; Lincoln; Odell.

12. Nabalus (Prenanthes). 906.

1. Nabalus asper (Michx.) T. & G. White Lettuce. On dry prairies over most of the state. Bassett; Brunswick; Crete; Lincoln; Loup City; Nebraska City; Neligh; Red Cloud.

The following were omitted in the list:

Habneria dilitata (Pursh) Hook.

Limnorchis dilatata (Pursh) Rydb.

In wet soil in the western part of the state. Halsey.

Petalostemum multiflorus Nutt.

Kuhnistera multiflora (Nutt.) Heller.

In the southeastern part of the state. Recently found at Table Rock.



APPENDIX

SUGGESTIONS FOR BEGINNERS

- 1. The purpose of the keys is to make it possible to determine the name and relationship of a plant from its structure. There was a time when botany courses consisted almost entirely of learning to use a manual and collecting and identifying plants. From this there was a tendency to go to the other extreme and leave out identification work altogether. The ability to name plants is not all, but a legitimate part of a knowledge of botany.
- 2. Each key begins with some statement and you are to determine if this is true of your specimen. If not go at once to the coordinate statement. If it does apply to your plant you will find two subordinate statements indented the same amount from the margin and you must again determine which applies to your plant. Continue thus till you find a statement followed by a name, if you are using the general key usually it will be the name of an order. This is as far as this key will take you and you must turn to the page indicated and find the key to the families, after determining the family turn to beginning of family and find a key to genera, and finally at the beginning of the genus a key to the species where you will find the name sought.
- 3. The Latin or scientific name usually consists of two parts, as Prunus americana or Quercus macrocarpa. The first part is the name of the genus to which the plant belongs, thus Prunus includes the plums and cherries and Quercus includes all the oaks. The second part or species name limits it to a single kind of plants as Prunus americana for our wild plum and Quercus macrocarpa for the bur-oak. In some cases some of the plants of a species differ from the rest, but are not considered different enough to constitute a different species, but only a variety of the species. This is indicated by adding a third part to the name, as Vicia americana linearis. The tendency is to raise most of the varieties of the older botanists to distinct species. Whether two forms shall be considered species or varieties is largely a matter of opinion.
- 4. Except for the commoner or more conspicuous plants the common or English names are of little value, as the same name will be applied to different plants in different places, and the same plant will be known by several different names even in the same locality. Many of our native plants have no common names.
- 5. Genera are united into larger groups called families, and these in turn are grouped into orders. Orders are grouped into classes and these into phyla. The names of families are formed by adding aceae to the name of one of their genera, as the rose family from Rosa is called Rosaceæ, and the names of orders by adding ales to a generic name, as Rosales for the order including the rose family and some related families.
- 6. The classification of flowering plants is based largely on the structure of the flowers, they are consequently referred to more frequently in the keys than other parts of the plant. A typical

flower has four kinds of organs: pistils, stamens, petals, and sepals. In the lower groups the pistils and stamens are generally numerous and the parts of the flower are separately attached to the receptacle.

- 7. The pistil or pistils are at the center of the flower. In the lower enlarged part of the pistil called the ovary are one or more cavities or cells which contain the ovules from which the seeds develop. The part of the wall of the cavity to which the ovules and seeds are attached is called the placenta. The stigma is the part of the pistil on which the pollen must fall to germinate and fertilize the ovules. The stigma is usually borne at the end of a stalk called the style. When this is short or wanting the stigma is sessile.
- 8. The stamens are borne around the pistils. They consist of the stalks called filaments, at the ends of which are the anthers in the cavities or cells of which the pollen is found.
- 9. Outside the stamens are two series of leaf-like organs making up the perianth. The inner whorl or corolla consists of petals which are usually some other color than green, and are usually the organs which make the flowers conspicuous and attractive. The outer whorl or calyx is made up of sepals which are usually green, but may resemble the petals in color and texture. The calyx protects the inner more delicate organs in the bud.
- 10. In the higher groups the flowers differ from this type in various ways. One of these is by the omission of some of the organs. Thus one or both of the perianth whorles may be wanting. If the corolla is wanting the flowers are apetalous; if the calyx is also wanting, they are asepalous or achlamydeous.
 - 11. Frequently some of the flowers lack pistils and the rest lack stamens. Such flowers are imperfect, while those having both stamens and pistils are perfect. Flowers with stamens and lacking pistils are staminate, and those with pistils and lacking stamens are pistillate. Staminate flowers may have rudimentary pistils and pistillate flowers rudimentary stamens. A rudimentary stamen is called a staminodium. Flowers without either functional stamens or pistils are neutral.
 - 12. When staminate and pistillate flowers are produced on the same individual plant it is monœcious, while if they are produced on different plants they are diœcious. Corn is monœcious, the staminate flowers occurring in the tassel and the pistillate in the ear. Cottonwood and box-elder are diœcious and only the pistillate produce seeds. Some plants have staminate and perfect flowers and are polygamous, or if the staminate are on separate plants, as in some grapes, they are called polygamo-diœcious.
 - 13. Modifications of the flowers are often brought about by the union of organs of the same kind. Thus the sepals may unite and the flowers become gamosepalous. When not completely united the free parts are called teeth. Or the petals may be united and the flowers become gamopetalous. The stamen filaments are often united. If all are united into one group they are monadelphous and if in two groups diadelphous. In most of the composites the anthers are united into a tube around the style, that is, they are syngenesious.
 - 14. The pistil often consists of several united carpels. All degrees of union occur, from a slight union at the base to complete

fusion to the stigmas. A pistil formed by the fusion of two or more carpels is called compound and can usually be distinguished from a single simple pistil by the ovary having several cells or several placentas as shown in cross-section. They often have several styles or stigmas.

- 15. Floral organs of one series are often united to those of an adjacent series, the stamen filaments for instance are often united to the corolla in gamopetalous flowers.
- 16. In many flowers the lower part of the receptacle is expanded into a disc or hypanthium on the edge of which the perianth and stamens are borne. This disc is present in the strawberry blossom, and persists at the base of the fruit. In plums and cherries the hypanthium is cup shaped and surrounds the pistil, but disappears when the blossom fades. In the rose it persists and forms the fleshy part of the hip and in the apple it is united to the carpels and forms the outer part of the fruit. In some of the evening primroses the hypanthium forms a tube extending beyond the ovary. When the hypanthium reaches to the top of the ovary or beyond and is adnate to it, the ovary is inferior and the flower is epigynous.
- 17. When all the members of each whorl of floral organs are alike or nearly so the flower is regular; if they differ from each other, one side of the flower being markedly different from the other, it is irregular.
- 18. The arrangement of the flowers, i. e., the inflorescence, is frequently referred to in the keys. The names of the common flower clusters will be given in the glossary.
- 19. After fertilization the ovary develops into the fruit. The walls of the ovary form the pericarp, which consists of two layers, the inner is the endocarp, the outer the exocarp. These are often quite different, for instance in the plum the exocarp is juicy, forming the flesh of the fruit, while the endocarp is horny and forms the shell of the pit.
- 20. Fruits which do not open are indehiscent, while those that open at maturity to allow the seeds to escape are dehiscent. Most dehiscent fruits split lengthwise into valves or teeth. If they have several cavities they may open at the middle of the cavities or at the dividing walls between them. The former is called loculicidal and the latter septicidal dehiscence. If the fruit breaks regularly crosswise, the top coming off like a lid, it is circumscissile.
- 21. A leaf may have three distinct parts, the blade, the stalk, or petiole and the stipules. The blade is the expanded green part forming the main portion of the leaf. Leaves with more than one blade are compound. The stipules are small appendages on the sides of the petiole at its base. They are frequently wanting, or represented only by glands. The petiole may also be wanting, the leaf is then sessile.
- 22. In many monocotyledons such as the grasses and sedges the leaf consists of a sheath surrounding the stem and a free part or blade. Where the blade and sheath join a collar-like appendage called the ligule often surrounds the stem.
- 23. The leaves accompanying the inflorescence are often quite different in forms, size, and sometimes in color from the ordinary foliage leaves. Such modified leaves are called bracts. A whorl of

bracts is called an involucre and if there are secondary whorls on the branches of the inflorescence they are called involucels.

24. In the grasses the flowers are arranged in spikelets consisting of an axis, the rachilla, bearing two rows of bracts. The lowest two are empty and are known as empty scales or glumes. The rest usually bear a flower in the axil and are known as flowering scales or lemmas. Between the flower and the rachilla is another bract called the palet or palea.

25. In the composites the head is surrounded by from one to several series of bracts forming the involucre. Some of the composites have in addition to these, other bracts mixed with the flowers in the head, the florets occurring in the axil of bracts called chaff.

- 26. Plants that live but a single season are annuals, those living two seasons are biennials, those living several to many years are perennials. Plants which do not form much woody tissue and whose stems live but a single season are herbs. Plants which form woody stems which persist from year to year are trees or shrubs. Trees differ from shrubs in being higher and having usually but a single stem, while shrubs are low and often have many stems.
- 27. In some plants the stem is under ground and usually short. They thus appear stemless and are called acaulescent. In such plants the flower stalks come directly out of the ground and are called scapes. The dandelion is a common example.
- 28. All measurements are given in the metric system. For the convenience of those not familiar with this system the following table of approximate equivalents will be useful:

VU	DIC OF GPPT	01111111111	
	Metric		English
1	millimeter	(mm.)	½ line or ½5 inch
1	centimeter (cm.)	(cm.)	% inch 4 inches (3.94 in.)
1	decimeter	(dm)	40 * (00 4 :)
T			Metric
	English		
1	line		2 millimeters
-	ANAMAS		2.5 centimeters
Ţ	inch		3 decimeters
1	foot		decimeters

GLOSSARY

Numbers refer to paragraphs in the preceding part of the appendix.

- Ascaulescent. Appearing stemless (27).
- Achene. A small indehiscent one-seeded fruit.
- Achlamydeous. Without a perianth (10).
- Acuminate. Tapering to a slender point.
- Acute. Sharp pointed.
- Adnate. Adhering to.
- Alternate. With but a single leaf at each node. Of stamens attached between, not over, the center of sepals or petals.
- Ament. A bracted spike of imperfect flowers, a catkin.
- Annual. Living but one year (26).
- Anther. Part of stamen in which the pollen is formed (8).
- Apetalous. Without petals (10).
- Aquatic. Growing in water.
- Aristate. Ending in an awn or bristle.
- Asepalous. Without sepals (10).
- Auricled. With ear-like lobes or appendages.
- Awn. A bristle like organ, a beard.
- Axil. The point on a stem just over the base of a leaf.
- Axillary. Borne in an axil.
- Axis. The stem or central part to which organs are attached.
- Berry. A small succulent fruit with several to many seeds, as a grape or a gooseberry.
- Biennial. Growing two years, producing seed the second season.
- Bipinnate. Compound leaf in which the parts are pinnate.
- Blade. The expanded green part of a leaf.

- Bract. A modified leaf subtending a flower or flower cluster (23).
- Bulb. A structure like a large bud, usually under ground.
- Bulblet. A small bulb or deciduous bud formed in the axil of a leaf, or replacing a flower.
- Caducous. Falling off very early.
- Caespitose. Growing in tufts.
- Callosity. A small, hard knob or swelling.
- Calyx. Outer whorl of the perianth (9).
- Campanulate. Bell-shaped.
- Canescent. With a fine white or gray pubescence.
- Capsule. A dry dehiscent fruit, consisting of united carpels.
- Carpel. A simple pistil or one of the parts of a compound pistil.
- Caryopsis. A dry indehiscent, one-seeded fruit with the pericarp adhering to the seed.
- Catkin. See ament.
- Cauline. Of leaves evidently borne on the stem as opposed to basal.
- Cell. One of the cavities in the ovary in which ovules and seeds are borne (7).
- Chaff. Glumes of grass or the bracts on the receptacle of some composites (24, 25).
- Chlorophyll. The green coloring matter of plants.
- Ciliate. With a fringe of marginal hairs.
- Cinercus. Grayish, ash-colored.
- Circumscissile. Dehising so that the top comes off like a lid.
- Claw. Stalk of a petal or sepal.

Cleistogamous. Flowers that are self-fertilized without opening.

Coma. Tuft of hair on a seed. Compound leaf. A leaf with more than one blade.

Compound pistil. Pistil formed from two or more carpels (14).

Connate. Like organs united as leaves.

Cordate. Shaped like the conventional heart.

Coriaceous. Leathery in texture. Corm. A bulb-like swelling of the base of the stem.

Corolla. Inner whorl of a double perianth (9).

Corolloid. Like petals in color and texture.

Corona. A whorl of appendages between the stamens and corolla of the milkweeds.

Corymb. A convex or flattopped flower-cluster with the marginal flowers opening first, its rays not arising from a common point on the common axis.

Cotyledon. A leaf at the first node of a seedling.

Crown. See corona.

Culm. Stem of a grass or sedge. Cuspidate. With a sharp point.

Cyme. A flower- cluster differing from a corymb in that the central flowers open first.

Deciduous. Falling off at or before the end of the growing season.

Decumbent. Lying flat with only the ends ascending.

Decurrent. An organ extending on another as a leaf on the stem.

Dehiscent. Opening to discharge its contents (20).

Dentate. With teeth along the margin.

Diadelphous. United into two groups (13).

Dichotomous. Forking regularly into two equal branches.

Digitate. Palmate or palmately lobed with about five leaflets or lobes.

Diecious. With staminate and pistillate flowers on different plants (12).

Disc. The hypanthium. The part of the head of a composite which consists of tubular flowers.

Discoid. Without ray flowers.

Dissected. Divided into numerous segments.

Drupe. A fruit with a fleshy exocarp and a bony endocarp, as a plum.

Emarginate. With a notch at the apex.

Embryo. Plant in the seed.

Endocarp. Inner layer of the pericarp (19).

Endosperm. Stored food surrounding the embryo in a seed.

Entire. Margins not notched or toothed.

Epigynous. With calyx and corolla attached above the ovary (16).

Erose. With irregular edges as if gnawed.

Exocarp. Outer layer of the wall of the ovary (19).

Falcate. Curved like a sythe.

Fertile. Producing seeds or spores (pollen).

Floccose. With tufts of soft woolly hairs.

Floret. One of the small flowers in a head.

Foliaceous. Leaf-like in color and texture.

Follicle. A simple dry fruit, dehiscent along one suture only, as that of the milkweed.

Fugaceous. Soon falling off.

- Funiculus. Stalk of a seed or ovule.
- Gamopetalous. With petals united at the base (13).
- Gamosepalous. Calyx of united sepals (13).
- Gibbous. Swollen on one side.
- Glabrate. Becoming smooth in age.
- Glabrous. Without hair on the surface.
- Gland. A secreting organ or small protuberance.
- Glaucous. Surface covered with powder or bloom.
- Glume. Bracts of a grass spikelet.
- Hastate. Shaped like an arrow head.
- Head. A compact cluster of sessile flowers.
- Herb. Plants without woody stems and dying to the ground each year (26).
- Herbaceous. Like an herb. Leaflike in color and texture.
- Hilum. Point of attachment of a seed.
- Hirsute. With coarse, stiff hairs. Hispid. With bristly hairs.
- Hyaline. Transparent or translucent, not green.
- Hypanthium. Outgrowth of the receptacle to which stamens and perianth are attached (16)
- Hypogynous. With calyx and corolla attached below the ovary.
- Imbricated. Overlapping each other like shingles.
- Imperfect. Having only stamens or pistils, not both (11).
- Indehiscent. Of fruits, not opening to discharge seeds (20).
- Indurated. Hardened.
- Inferior ovary. Ovary with the perianth attached to the adnate hypanthium above it (16).

- Inflorescence. Arrangement of flowers or a flower cluster.
- Internode. Part of a stem between nodes.
- Involucre. Whorl of bracts at the base of a flower cluster. Bracts, bristles, etc., accompanying flowers, spikelets or fruits (23).
- Involucel. Secondary involucre on branches of a flower cluster (23). A small involucre.
- Irregular. Of flowers, with different members of one or more whorls differing in size or shape.
- Keel. Ridge on the back of scales in a spikelet. Lower united petals of the flower of the pea family.
- Laciniate. Divided into numerous narrow lobes or segments.
- Lanceolate. Narrow leaf tapering to a point at the apex.
- Legume. A simple fruit splitting along both sutures.
- Ligulate. With a strap-shaped corolla as the rays of some composites.
- Ligule. Appendage at the junction of blade and sheath of leaves of some monocotyledons as the grasses.
- Lemna. Bract of a grass spikelet subtending the flower.
- Limb. The expanded part of a petal or corolla.
- Linear. Long, narrow with nearly parallel edges.
- Loment. Fruits in the pea family that are constricted between the seeds and break up into one-seeded indehiscent joints at maturity.
- Loculicidal. Dehiscent at the middle of the cells of a capsule (20).

- Lodicules. Organs at the base of the grass flower which by swelling spread the scale and palet apart at anthesis, perhaps rudiments of the perianth.
- Monadelphous. United in one group or cluster (13).
- Monœcious. With staminate and pistillate flowers on the same plant (12).
- Mesophyte. Growing where it is neither excessively wet nor dry.
- Mucronate. Ending in a short, sharp point.
- Nectary. Organ which secretes nectar, the sweet fluid collected by bees and other insects. Often used for organ where nectar is stored.
- Nerve. The fibrovascular bundles of leaves or bracts.
- Neutral. Without functional pistils or stamens (11).
- Net-veined. Veins forming an evident net-work, as opposed to parallel veined where the cross-connections are not evident.
- Node. Points on a stem where leaves are borne.
- Nut. A one seeded indehiscent fruit with a bony pericarp.
- Nutlet. A small nut, differs from an achene in the thicker, harder shell.
- Ocreae. Stipules which are united into a tube around the stem.
- Ovary. Lower enlarged part of a pistil in which the ovules are found (7).
- Ovule. Organs in the ovary from which the seeds develope (7).
- Palet. Palea. The inner, usually smaller and two-keeled, of the scales which enclose the grass flower (24).
- Palmate. With lobes or veins that diverge from the end of the petiole.

- Panicle. A loose compound inflorescence with pediceled flowers or spikelets.
- Pappus. The modified calyx of the composites consisting of scales, bristles, awns or plumose hairs.
- Parietal. Borne on or pertaining to the wall of the ovary. A placenta not basal or central.
- Pedicel. Stalk of a single flower in a flower cluster.
- Peduncle. Stalk of a single flower or of a flower cluster.
- Peltate. Leaf in which the petiole is attached to the lower surface not at the edge of the blade.
- Perennial. Growing for several years. In herbaceous perennials the stem and roots are usually renewed each year, only a small part as a bud may survive the winter.
- Perfect. Flowers with both stamens and pistils (11).
- Perfoliate. Having the base of the leaf surround the stem so as to appear to be pierced by it.
- Perianth. The floral leaves collectively (9).
- Pericarp. Part of a fruit derived from the wall of the ovary (19).
- Perigynium. A sac-like bract which encloses the ovary and achene in Carex.
- Perigynous. Borne on disc or cup of torus so as to be around not at the base of the ovary.
- Petal. A member of the inner whorl of the perianth (9).
- Petaloid. Of the color or texture of a petal.
- Petiole. Stalk of a leaf, wanting in sessile leaves (21).
 Pilose. With soft hairs.

Pinnate. A compound leaf with the leaflets attached along the sides of a central axis.

Pinnatifid. Pinnately cleft at least half way to the midrib.

Pistil. The floral organ in which the ovules are found (7).

Pistillate. With pistils and without stamens (11).

Placenta. Part of the ovary to which the ovules are attached (7).

Pollen. Microspores of a seed plant.

Polygamous. With perfect and staminate flowers. When the staminate are on the same plant as the perfect it is polygamo-monœcious and if on separate plants it is polygamo-diœcious (12).

Polypetalous. Petals separate or if partly united separate at the base.

Puberulent. Covered with minute hairs.

Pubescent. Hairy with short, soft, downy hairs.

Pome. Fruit with several papery or bony carpels surrounded by a fleshy hypanthium as an apple or haw.

Pyxis. Capsule in which the upper portion falls off as a lid or cap.

Raceme. A flower cluster with a simple axis bearing stalked flowers.

Rachilla. The axis of a spikelet.

Ray. Marginal floret in composites with a strap shaped corolla.

Receptacle. Surface to which the floral organs are attached or to which the florets are attached in a head of flowers.

Regular. All organs in each whorl are about equal in size and form (17).

Retrorse. Bent backwards or downwards.

Rhizome. An underground stem. Rootstock (rootstalk). A rhi-

zome.

Rostellum. A beak-like appen-

dage on the stigma of the orchids.

Sagittate. Shaped like an arrow-head.

Samara. A winged fruit as of the ash or elm; a key fruit.

Scabrous. With a rough surface.

Scape. A leafless peduncle arising from an underground stem (27).

Scarious. Thin, dry, membranous and not green.

Secund. Bearing flowers only on one side of an axis.

Sepal. A member of the outer whorl of the perianth (9).

Septicidal. Dehiscent along the dividing walls between the cells of a capsule (20).

Serrate. With teeth like sawteeth along the edge.

Serrulate. Serrate with very small teeth.

Sessile. Without a stalk.

Setose. Bristly.

Sheath. The basal part of the leaf which surrounds the stem, in some monocotyledons, as the grasses.

Silicle. A short silique.

Silique. The narrow, two-valved capsule of the mustards.

Sinus. The space between the basal lobes of a leaf.

Spadix. A spike with a fleshy axis.

Spathe. A large bract enclosing a flower-cluster.

Spatulate. Narrow at the base with a broader rounded apex, spoon-shaped.

Spicate. Borne in spikes.

Spike. An inflorescence consisting of a simple axis with sessile flowers or spikelets.

Spikelet. One of the small bracted spikes which make up the compound inflorescence of the grasses and sedges (24).

Squarrose. Spreading or recurved at the end.

Stamen. Floral organ which produces the pollen (8).

Staminodium. A rudimentary stamen (11).

Staminate. With stamens and without pistils (11).

Standard. The large upper petal of a flower of the pea family.

Stellate. Hairs that fork so as to resemble a conventional star.

Stigma. Part of a pistil on which pollen should fall to pollinate the flower (7).

Stipe. A stalk by which a pistil or fruit is attached to the receptacle.

Stipitate. With a stipe.

Stipules. Paired appendages at the base of the petiole, often green and of the same texture as the leaf blade (21).

Stolon. A prostrate branch which roots at the apex and nodes, a runner as of the strawberry.

Stoloniferous. With stolons. Strigose. With appressed stiff hairs.

Style. A filiform prolongation of the pistil at the end of which the stigma is borne (7).

Subulate. Awl-shaped.

Succulent. Fleshy, thick and juicy.

Superior. When perianth is attached below ovary, the ovary is superior.

Syngenesious. United by the anthers (13).

Terete. Circular in cross-section, round.

Terrestrial. Growing in soil.

Thyrsus or Thyrse. A contracted panicle.

Tomentose. Densely covered with woolly hairs.

Tuber. An enlarged underground stem.

Tubercle. An outgrowth or callosity.

Umbel. A flower cluster with the branches arising from a common point on the main axis.

Umbellet. A secondary umbel on the branches of an umbel.

Utricle. A small bladdery indehiscent one-seeded fruit.

Valvate. With edges touching but not overlapping.

Vein. A strand of fibrovascular tissue in a leaf-blade.

Venation. The arrangement of veins in a leaf.

Vernation. The arrangement of leaves or perianth in the bud.

Verticillate. With more than two organs as leaves in a whorl.

Villous. With long, soft hairs.

Whorl. A circle of leaves, bracts or other organs arranged like the spokes of a wheel around a node.

Xerophytic. Growing in very dry situations.

Zygomorphic. Irregular, of flowers.

LIST OF PRINCIPAL LOCALITIES

With elevation in feet above sea level

Ainsworth		Brown county.
Alliance		Box Butte county.
Anselmo	.2695	Custer county.
Ashland	.1986	Saunders county, near the Platte river.
Aten		On the Missouri river in the northwestern
		part of Cedar county.
Atkinson	.2108	On the Elkhorn river in Holt county.
Bassett		In the northern part of Rock county.
Beatrice		On the Blue river in Gage county.
Bellevue	985	On the Missouri river in Sarpy county.
Belmont		In the southwestern part of Dawes county.
Big Sandy Creek		In northwestern Holt county.
Broken Bow		In the central part of Custer county.
Brunswick		In the northern part of Antelope county.
Burwell	2180	On the Loup river in Garfield county.
Callaway	2561	On the Loup river in Custer county.
Carns		On the Niobrara river in Keyapaha county.
Central City		On the Platte river in Merrick county.
Chadron		In northeastern Dawes county.
Chelsea		On the Niobrara river in Holt county.
Cody's Lakes		Headwaters of the Dismal river in the south-
Cody's Lakes		western part of Hooker county.
Court House Rock	4100	South of Bridgeport in Morrill county.
Crawford		On the White river in the western part of
Clawfold		Dawes county.
Crete	1353	On the Blue river in Saline county.
Cuba		On the Niobrara river in Rock county.
Curtis		On Little Medicine creek in Frontier county.
Culbertson	2565	On the Republican river in Hitchcock county.
Dismal River	2000	In southern Hooker and Thomas counties.
Emerson		In southeastern Dixon county.
Endicott		On the Little Blue river in Jefferson county.
Ewing		On the Elkhorn river in Holt county.
Fairbury	1212	On the Little Blue river in Jefferson county.
Florence	1014	On the Missouri river north of Omaha.
Fort Niobrara	1014	In Cherry county near Valentine.
Fort Robinson		On the White river in western Dawes county.
Franklin		On the Republican river in Franklin county.
Fremont	1005	In Dodge county on the Platte river.
Candan	2550	In Sheridan county.
GordonGrand Island	1000	Near the Platte river in Hall county.
		On the Niobrara in northwestern Holt county.
Grand Rapids	1040	On the Republican river in Webster county.
Guide Rock		In Dundy county on the Arikaree river.
Haigler	0200	On the Loup river in eastern Thomas county.
Halsey	2090	On the Republican river in Nuckolls county.
Hardy	1539	Near the head of Hat creek in Sioux county.
Harrison	4849	The the menth and next of Sieux county.
Hat Creek basin.		In the northern part of Sioux county.
Indianola	2372	On the Republican river in Red Willow county.
Kearney	2152	On the Platte river in Buffalo county.

To Charmy county about thirty miles south-

Kennedy		In Cherry county about thirty miles south- west of Valentine.
		West of valentine.
Laurel		In the southeastern part of Cedar county.
Lincoln	1181	On Salt creek in Lancaster county.
Long Pine	2399	In the eastern part of Brown county.
Louisville	1002	On the Platte river in Cass county.
Loup City	2089	On the Loup river in Sherman county.
Merriman	3253	In northwestern Cherry county.
Minden	.2162	In central Kearney county.
Mullen	.3199	Near the Loup, northern Hooker county.
Natick	2782	On the Loup river in Thomas county.
Nebraska City	. 961	On the Missouri in Otoe county.
Neligh	1744	On the Elkhorn river in Antelope county.
Nemaha	891	On Nemaha creek in Nemaha county.
Newark	2100	On the Platte river in Kearney county.
Newcastle		On Ponce creek in northern Dixon county.
Niobrara		Near mouth of the Niobrara, Knox county.
Norfolk	1593	In northeastern Madison county.
Omaha	1049	On the Missouri river in Douglas county.
O'Neill	1075	On the Elkhorn in Holt county.
		On the Niobrara in northeastern part of
Paddock		Holt county.
D \	000	On the Missouri in Nemaha county.
Peru		A mountainous region south of the Hat Creek
Pine Ridge		A mountainous region south of the flat Creek
		and White River basins, mostly in Sioux
		and Dawes counties.
Pishelville		On the Niobrara river in northwestern Knox
		county.
Plainview	1682	In the northwestern part of Pierce county.
Plattsmouth	979	At mouth of the Platte in Cass county.
Plummer Ford		On the Dismal river in Hooker county.
Ponca		On Ponca creek in northeastern Dixon county.
Red Cloud	1687	On the Republican river in Webster county.
Riverton	1765	In Franklin county on the Republican river.
Rulo	842	On the Missouri river in southeastern Rich-
20020		ardson county.
Scotts Bluff	4462	Spur of the Wildcat ridge, west of Gering in
Deottis Dian		Scottsbluff county.
Simeon		In Cherry county about twenty miles south-
Silieon		west of Valentine.
Ct Tamas		In the northeastern part of Cedar county.
St. James	1019	On the Loup river in Howard county.
St. Paul	0.1010	On the Missouri River in Richardson county.
Talmage	947	On the Missouri River in Richardson county.
Thedford	2842	On the Loup river in Thomas county.
Valentine	2581	In the northeastern part of Cherry county.
Wahoo	1187	In central Saunders county.
War Bonnet Cany	on	In the Hat Creek basin in Sioux county.
Weeping Water	1075	On Weeping Water creek in Cass county.
Weigand		In the northeastern part of Knox county.
Whitman	3588	In northeastern Grant county.
Whitney	3404	On the White river in Dawes county.
Wild Cat ridge		Mountainous region between the North Platte
		river and Pumpkin creek, mostly in Scotts-
		bluff, Banner, and Morrill counties.
Wood River	1989	In the Platte valley in Hall county.
Wymore		On the Big Blue river in Gage county.

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Abietaceæ	14	Apple	135	Berula	167
Abronia	81	Aquilegia	65	Besseya	122
Abutilon	99	Arabis	73	Betula	163
Acalypha	93	Araceæ	25	Betulaceæ	162
Acanthaceæ	124	Aragallus	141	Bicarpellatæ	105
Acer	160	Arales	24	Bicuculla	68
Aceraceæ	160	Aralia	164	Bidens	188
Acerates	118	Araliaceæ	164	Bindweed 89	9, 108
Achillea	193	Arctium	196	Birch	163
Acnida	81	Arctostaphylos	104	Bitter-sweet	159
Acorus	25	Arenaria	77	Blackberry	134
Actæa	65	Argemone	67	Blackberry lily	59
Acuan	137	Arisæma	25	Black-eyed Susan	186
Adder's Tongue	20	Aristida	56	Bladder-nut	159
Adiantum	11	Aristolochiaceæ	155	Bladder-pod	72
Adicea	101	Arnica	195	Bladder-wort	124
Æsculus	160	Arrhenatherum	48	Blazing-star	175
Afzelia	122	Arrow-grass	16	Blephilia	129
	128	Arrow-grass Arrow-heads	15	Blood-root	
Agastache				Bluebells	67
Agalinis	123	Artemisia	193		172
Agoseris	200	Arum	25	Blue flag	59
Agrimonia	134	Asarum	155	Blue-stem	57
Agropyron	44	Asclepiadaceæ	117	Blue-weed	113
Agrostemma	75	Asclepias	117	Bœbera	192
Agrostideæ	52	Asclepiodora	118	Bœhmeria	101
Agrostis	52	Ascyrum	96	Bog bean	116
Aizoaceæ	80	Ash	115	Boltonia	180
Alfalfa	140	Asimina	67	Boneset	175
Alisma	16	Asparagus	21	Borage	109
Alismaceæ	15	Aspen	7 8	Boraginaceæ	109
Alismales	15	Asplenium	11	Botrychium	10
Allionia	80	Aster	177, 180	Bouncing-bet	76
Allium	19	Asteraceæ	173	Bouteloua	47
Allocarya	111	Astereæ	176	Boxelder	161
Alopecurus	54	Astragalus	142	Brachyactis	182
Alsine	76	Atheropogon	48	Brassica	71
Alum-root	149	Athyrium	11	Brassicaceæ	69
Alyssum	74	Atriplex	84	Brauneria	186
Amaranthaceæ	81	Avena	48	Bread-root	144
Amaranthus	81	Aveneæ	48		2, 137
Amarvllidaceæ	58	Avens	133	Bromus	38
	190	Azolla	12	Broom rape	124
Ambrosia	189	Baccharis	183	Broom-weed	177
Ambrosiæ		Bacopa	122	Buck-bean	116
Amelanchier	135		157	Buckeye	160
Ammannia	150	Balsam-apple	91	Buckhorn	103
Amorpha	145	Balsaminaceæ	65	Buckthorn	158
Ampelopsis	159	Baneberry	139	Buckwheat	85
Anacardiaceæ	161	Baptisia		Buchloe	48
Anagallis	102	Barbarea	71	Buffalo berry	
Andropogon	57	Barberry	66		159
Andropogoneæ	57	Batrachium	63	Buffalo bur	115
Androsace	102	Bean	146	Bugle-weed	130
Anemone	64	Bearberry	104	Bug-seed	84
Anemonella	63	Beard-grass	54, 57	Bulbilis	48
Anise Hyssop	128	Beard-tongue	120	Bulrush	28
Anogra	153	Bear-grass	21, 104	Burdock	196
Anonaceæ	67	Beckmannia	47	Bur-head	15
Antennaria	184	Bed-straw	170	Bur-marigold	189
Anthemideæ	193	Beech, blue	162	Burnet	134
Anthemis	193	Bee-plant	68	Burning bush	159
Anthophyta	15	Beggar-ticks	189	Bur-nut	92
Anychia	78	Belamcanda	59	Bur ragweed	191
Apiastrum	166	Bellflower	172	Bur-reed	25
Apios	146	Berberidaceæ	66	Bursa	73
Aplopappus	178	Berberis	66	Bush-clover	147
	116	Bergamot	129	Button-ball	149
Apocynaceæ	116	Berteroa	74	Buttonbush	176
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Buttercup	62	Chlorideæ	47	Cup-plant	185
Butternut	162	Choke-cherry	136	Currant	149
	195	Chrysopsis	177	Cuscuta	108
Cacalia			177	Cycloloma	83
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Cactus	155	Cichorieæ	197	Cymopterus	168
Cæsalpiniaceæ	136	Cichorium	197	Cynareæ	196
Calamagrostis	. 53	Cicuta	167	Cynomarathrum	168
	53	Cinna	53	Cynoglossum	110
Calamovilfa			132		26
Calamus	25	Cinquefoil		Cyperaceæ	
Callirrhoe	99	Circæa	154	Cyperus	29
Callitrichaceæ	95	Cistaceæ	97	Cypress-grass	30
Callitriche	95	Clammy weed	~ 69	Cypripedium	59
	21	Claytonia	80	Dactylis	41
Calochortus		Claytoma		Daisy fleabane	183
Caltha	65	Clear-weed	101		145
Calycifloræ	131	Cleavers	172	Dalea	
Camelina	73	Clematis	64	Dandelion 199,	200
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	172	Cleomella	69	Datura	115
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Campion	76	Clover	140, 146	Day-flower	22
Cancer root	124	Club-rush	28	Death camas	19
Cannabis	101	Cocklebur	191	Delphinium	65
	68	Coffee-tree	137	Dentaria	72
Capnoides				Deringa	167
Capparidaceæ	68	Cogswellia	168		
Caprifoliaceæ	171	Coleosanthus	. 175	Desmodium	147
Capsella	73	Collomia .	107	Diarrhena	42
Cardamine	72	Columbine	65	Dicentra	68
	173	Comandra	160	Dicotyledoneæ	61
Cardinal-flower					150
Carduus	196	Commelina .	22	Didiplis	
Carex	31	Commelinaceæ	22	Digitaria	51
Carpet weed	80	Compass-plant	185	Diplachne	43
Carpinus	162	Compositæ	173	Disporum	21
	22	Cone-flower	186	Distichlis	41
Carrion flower				Dock	86
Carrot	168	Coniferales	14		
Carya	162	Conifers	14	Dodder	108
Caryophyllaceæ	75	Conioselinum	168	Dodecatheon	103
Caryophyllales	74	Conringia	74	Dog-bane	116
	136	Convallariaceæ	18	Dog's-tooth violet	20
Cassia			107		169
Castalia	67	Convolvulaceæ	107	Dogwood	
Castilleja	123	Convolvulus	108	Dondia	85
Catabrosa	42	Coral-berry	171	Double-claw	123
Catchfly	76	Coral-root	60	Draba	73
	128	Corallorhiza	60	Dracocephalum	128
Catnep					25
Cat's foot	184	Coreopsis	188	Dragon-root	
Cat-tail	25	Corispermum	84	Drop-seed	53
Caulophyllum	66	Cornaceæ	169	Drymocallis	133
Ceanothus	158	Corn-cockle	75	Dryopteris	11
	159	Cornus	169	Duckweed	25
Celastraceæ	157		68	Dulichium	29
Celastrales		Cor <u>yda</u> lis			68
Celastrus	157	Corylus	163	Dutchman's-breeches	
Celtis	100	Coryphantha	155	Dysodia	192
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Cephalanthus	170	Crane-bill	90	Echinodorus	
Cerastium	77	Crassulaceæ	148	Echium	113
Ceratophyllaceæ	67	Cratægus	135	Eclipta	186
Ceratophyllum	67	Crepis	200	Elaeagnaceæ	159
	137	Cress	70, 72, 73	Elatinaceæ	78
Cercis	134		68	Elatine	78
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Chærophyllum	169	Crotalaria	140	Elder	171
Chætochloa	51	Croton	93	Eleocharis	27
Chaff weed	103	Crowfoot	62	Eleusine	47
Chammanian	152	Cruciferæ	69	Elm	100
Chamænerion			111	Elodea	58
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Cheilanthes	11	Cryptogramma	11	Elymus	45
Chenopodiaceæ	82	Cryptotænia	167	Enchanter's	
Chenopodium	82	Cucumber	157	nightshade	154
	136	Cucurbita	157	* Epilobium	152
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Eriocoma	54	Gleditsia	137	Halorrhagidaceæ	155
Eriogonum	85	Glyceria	40	Hartmannia	153
Eriophorum	29	Glycine	146	Hawkweed	201
Erodium	91	Glycyrrhiza	144	Hawthorn	135
Eryngium	166	Gnaphalium	184	Hazel-nut	163
Erysimum	74	Goat's beard	198	Heal-all	128
Erythronium	20	Goat's rue	141	Hedeoma	129
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Eupatorieæ	174	Gonolobus	119	Helenieæ	191
Eupatorium	174	Gooseberry	149	Helenium	192
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Euphorbiaceæ	93	Gourd	157	Helianthemum	97
Euploca	110	Graminales	26	Helianthus	186
Eurotia	84	Gramineæ	36	Heliopsis	185
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Euthamia	179	Grass, alkali	41	Hemicarpha	27
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	120	", couch			155
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Fireweed	152	, Indian	58	Hone-wort	167
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Foxglove	122	", porcupine	56	Hornbeam	162
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Fraxinus	115	" , reed	43, 53	Horse nettle	115
Frenchweed	70	", rice	57	Horse-tails	13
Fritillaria	20	", rye	45	Horse-weed	183
Frœlichia	82	" sand	43	Hosackia	140
Frostweed	97	" , slough	47	Hound's-tongue	110
Fuirena	27	" , spear	41, 56	Houstonia	170
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Gaillardia	192	" stink	43	Hydrocharitaceæ	58
Galeorchis	59	" , water	42	Hydrophyllaceæ	109
Galium	170	" , wheat	44	Hydrophyllum	109
Galpinsia	154	" , witch	50	Hymenopappus	191
Garlic, false	20	" , wood	55	Hypericaceæ	96
Gaura	154	", yard	47	Hypericum	96
Gaurella	153	Gratiola	122	Hypoxis	58
	59	Grease-wood	84	Hyssop	122
Gemmingia	116	Grindelia	177	Hystrix	46
Gentian	116	Gromwell	112	Ibidium	60
Gentiana	116	Ground-cherry	113	Ilysanthes	122
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Gentianales	115		146	Indian hemp	116
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Iridales	59	Liparis	60	Milk-vetch	142
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Larkspur	148	Malvales	98	Nabalus	201
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Lesquerella	72	Mediçago	140	Nyctaginaceæ	80
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